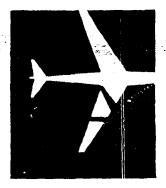
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### Prepared for the FEDERAL AVIATION AGENCY SYSTEMS RESEARCH AND DEVELOPMENT SERVICE



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THE TRAVELERS RESEARCH CENTER INC.



Supplementary Report Technical Publication 23 Contract FAA/BRD-363

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# Supplement to AN EVALUATION OF 2-7-hr AVIATION TERMINAL-FORECASTING TECHNIQUES

Isadore Enger Lawrence J. Reed James E. MacMonegle

November 1962

Project 204-1

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THE TRAVELERS RESEARCH CENTER, INC. 650 Main Street Hartford 3, Connecticut

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<sup>\*</sup>Contained in the main body [7].

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#### 1.0 INTRODUCTION

The main body of this report [7] contains a description of the extensive procedure used to test and evaluate certain statistical terminal-weather forecasting techniques and a summary evaluation of the results. This supplement contains details of the test too lengthy for inclusion in the main part, some items of interest in themselves but of peripheral importance to the central purpose of the test, and a large number of contingency tables of forecast-vs-observed values.

The verification scores in the main evaluation [7] are the Brier-Allen P-score for probability forecasts and the Bryan score for categorical forecasts. Three other scores were computed to evaluate the categorical forecasts: the percentage of hits, the Heidke skill score, and the Vernon skill score. The computed scores and a brief analysis of them are given here in Section 2.0. Each of the three scores requires that weight functions be used to generate categorical forecasts from probability forecasts. The weight functions are given in Section 2.0 also. The weight functions used were designed to maximize the Bryan score [4,7]. In response to an FAA request for suggestions, the Weather Bureau submitted a table of weight functions and requested additional evaluation. This work is documented in Appendix D.

Five statistical techniques were evaluated [7]: climatological expectancy of persistence, grouping, Lund, multiple-discriminant analysis, and Lewis. Some of the developmental work done on the first four techniques is presented in Section 3.0, along with a brief description of the Lewis technique.

One of the primary objectives of the test was to compare the accuracy of forecasts made by objective statistical techniques with subjective forecasts prepared on a routine operational basis. This required that the subjective forecasts be collected and decoded. Section 4.0 contains a description of the types of subjective forecasts evaluated and the manner in which they were decoded.

A by-product of the test is a set of IBM 7090 magnetic tapes containing standard hourly airway; observations. Because these data may be useful in other work, a brief description of the tapes is given in Section 5.0.

Some problems of a general nature encountered in subjectively choosing predictor variables for developing statistical forecast methods are discussed in Section 6.0.

The predictors used to make forecasts by grouping, Lund, and multiple-discriminant analysis are listed in Appendix B.

All contingency tables of forecast-vs-observed values, more than 1000, that were computed in the test are given in Appendix C.

#### 2.0 EVALUATION OF TEST FORECASTS

The Forecast Evaluation Working Group specified that the Bryan score would be the primary score for evaluating categorical forecasts; the main body of this report [7] contains such an evaluation. The Working Group requested that other scores be computed also. Three of the more commonly used scores for evaluating categorical forecasts are percentage of hits, Heidke skill score, and Vernon skill score. The three scores require that categorical forecasts be generated from probability forecasts. The method of generation utilizes 'weight functions"; these are given in Section 2.1, with brief descriptions of the three scores. The scores were computed for categorical forecasts made with six forecast techniques on 42 predictands; these are given in Section 2.2, with a brief analysis.

#### 2.1 Weight Functions for Generating Categorical Forecasts

The statistical techniques evaluated, except for the Lewis technique, produce probability forecasts only. To compare these forecasts with persistence, Lewis technique, and conventional subjective forecasts (which are in categorical form only), it is necessary to use the robability forecasts to generate categorical forecasts. The method for doing this is given by Eq. 2-4 of the main body [7], reproduced here:

$$G_1 = \sum_{j=1}^{5} W_{1j}^f_j, \quad G_2 = \sum_{j=1}^{5} W_{2j}^f_j, \quad ..., \quad G_5 = \sum_{j=1}^{5} W_{5j}^f_j,$$
 (2-1)

where the  $f_j$ 's (j = 1, ..., 5) are the forecast probabilities. The maximum G gives the categorical forecast. Thus, if  $G_1$  is largest, category 1 of the predictand is forecast; etc. The weight function, the W's, are devised in such a way as to maximize the score being used to verify the categorical forecasts. Weight functions were computed for percentage of hits, Heidke skill score, and Vernon skill score.

All three scores are computed from a contingency table of forecast-vs-observed values. An example of such a table is Table 2-1. The notation in this table will be referred to in describing the methods for computing the three scores.

#### 2.1.1 Percentage of Hits

A hit is a correct forecast of the observed category. The percentage of hits PH is the ratio of the sum of the entries on the main diagonal of Table 2-1 to the total number of forecasts:

$$PH = \frac{\sum_{i=1}^{5} n_{ii}}{T} = \frac{R}{T},$$
 (2-2)

where R is the number of hits.

It is intuitively clear that forecasting the category with the highest probability will maximize the number of hits. The weight function that accomplishes this is given in

TABLE 2-1
SCHEMATIC FORECAST VERIFICATION TABLE\*

			Total				
		1	2	3	4	5	forecast
5+	1	<sup>n</sup> 11	n <sub>12</sub>	n <sub>13</sub>	r <sub>1</sub> 4	<sup>n</sup> 15	r <sub>1</sub>
	2	<sup>n</sup> 21	n <sub>22</sub>	n <sub>23</sub>	n <sub>2</sub> 14	<sup>n</sup> 25	r <sub>2</sub>
Forecast	3	n <sub>31</sub>	n <sub>32</sub>	n <sub>33</sub>	n <sub>3</sub> ] <sub>4</sub>	<sup>n</sup> 35	r <sub>3</sub>
. P.	)4	ուկյ	n42	n)43	ոյլյլ	n) <sub>45</sub>	гų
	5	n <sub>51</sub>	n <sub>52</sub>	i ∴ ″53	n <sub>5</sub> ) <sub>4</sub>	ი <sub>55</sub>	r <sub>5</sub>
Total observed		c <sub>1</sub>	cS	Cz	C/I	c <sub>5</sub>	Т

<sup>\*</sup>The general entry,  $n_{i,j}$ , is the number of times that the predictand was forecast in category i and observed in class j.

TABLE 2-2
WEIGHT FUNCTION
TO MAXIMIZE PERCENTAGE OF HITS

				j		
		1	2	3	14	5
	1	1	0	υ	O	0
	2	0	1	С	0	0
i	3	0	0	1	0	0
	4	O	0	0	1	c
	5	0	0	0	Ò	1

Table 2-2. Using these weights to compute G's gives

$$G_1 = \sum_{j=1}^{5} W_{1j}f_j = f_1, \quad G_2 = \sum_{j=1}^{5} W_{2j}f_j = f_2, \quad ..., \quad G_5 = \sum_{j=1}^{5} W_{5j}f_j = f_5.$$
(2-3)

Thus, the G's and f's are identical.

It is of interest to note that the same weight function would be used to maximize the Appleman skill score [1]. This can be shown as follows. The Appleman score is

$$A = \frac{R - X}{T - X'} \tag{2-4}$$

where X is the number of cases in the most frequently observed category (the largest column sum in Table 2-1). In comparing two forecast techniques, the same observed cases are verified so that X is the same for the two techniques and so is T. The only quantity on the right side of Eq. (2-4) that varies is R, so A is proportional to R/T, which is PH.

#### 2.1.2 Heidke Skill Score

The Heidke skill score [3] is

$$H = \frac{R - E}{T - E}, \tag{2-5}$$

where E is defined as the number of forecasts expected to be correct by climatelogy;

$$E = \sum_{i=1}^{5} p_{i} c_{i}, \qquad (2-6)$$

where  $p_i$  is the proportion of cases in class i, as measured on a long series of historical data, and  $c_i$  is the number of observed cases in category i.

The method for obtaining the weights to maximize the score was devised under this contract by Bryan [4]. There is one set of 25 weights for each predictand; these are shown in Table 2-3.

#### 2,1.3 Vernon Skill Score

The version of the Vernon skill score [13] used in the evaluation is

$$V = \frac{\sum_{i=1}^{5} \sum_{j=1}^{5} r_{i} p_{j} d_{ij} - \sum_{i=1}^{5} \sum_{j=1}^{5} n_{ij} d_{ij}}{\sum_{i=1}^{5} \sum_{j=1}^{5} r_{i} p_{j} d_{ij}},$$
 (2-7)

# TABLE 2-3 HEIDKE AND VERNON LOSS MATRICES

HEIDKE LOSS MATRIX

MCGUIRL AFB. WRIGHTSTOWN. N.J.

VERNON LOSS MATRIX

C	Ł	ı	L	IN	G	٠	2
---	---	---	---	----	---	---	---

					CETETHON				
0.44213	-6.00787	-0.00787	-1.00787	-0.00787	1.03015	0.03015	-0.96985	-1.96985	-2.96985
-0.01532	0.99488	-0.01512	-0.01512	-0.01512	-0.25259	0.74741	-0.25259	-1.25254	-2.25259
-0.03379	~0.03579	0.96621	-2.03379	-0.03379	-1.513}0	-0.51310	0.48690	-0.51310	-1.51310 -0.72393
-0.05568	~0.05568	-0.05568	0.94432	-0.05568	-2.723/13	-1.72393	-0.7?393	0.27607 -0.85290	0.14710
-0.28741	-(.24141	-0.28741	-0.28791	0.71209	-3.85290	-2.65290	-1.85290	-0.65240	0.14710
					CEILING+A				
0.98916	-0.01084	-0.01044	-(.01084	-0.01084	1.51226	6.51226	-0,45774	-1.48774	-2.48774
-0.02074	0.97926	-9.02074	-0.02074	-0,42076	0.09722	1.09722	0.09122	-0.40278	-1.90278
-0.04664	-0.04664	0.95336	-0.04664	-0.04664	-1.28534	-0.28534	0.71466	-0.28534	-1.26534
-0-07669	-0.07669	~0.07669	0.92331	-0.07669	-2.59484	-1.594R4	-0.59484	∂.40516	-0.59484
-C.3967C	-0.39670	-0.39670	-0.39670	J.69330	-3.76421	-2.78421	-1.78421	-0.78421	0.21579
					CEILING+6				
							0 13060	1 12060	-1 11050
0.9873	-C.01270	-3,01270	-0.01270	-0.61276	1.45041	0.86041	-0.13959	-1.13959 -0.05C18	-2.13959 ~1.65018
-0.02432	0.97568	-9.72432	-0.02432	-0,07432	0.34982	1,34982	0.34987	-0.12081	-1.12081
-0.05472	-0.05472	0.94528	-0.05472	-0.05477	-1.12081	-0.12081	C.87919 -0.50157	0.49843	-0.50157
-0.08943 -0.46548	-0.08993	-0.08993	0.91007	-0.08993	-2.50157 -3.73462	-2.73462	-1.73462	-0.73462	0.26538
-0,40040	-3.46548	-0.46545	7.46548	0.53452	- 3.13402	-2.13402	-1.17402	-0.07	0.20776
					V15101L11Y+2				
					*13101211111				
0.98995	-0.01005	10.01.005	-0.01005	-0.01005	1.22305	L.223C5	-C.77695	-1.77695	-2.77495
-0.01126	0.98874	-0.01126	-0.91126	-0.01126	-0.10503	C.89497	-0.10503	-1.10503	-2.10503
-0.04155	-0.04155	0.95845	-0.24155	-C.04155	-1.41657	-0.41657	0.58343	-0.41657	-1.41657
-0.04432	-0.04482	-0.04482	0.95518	-0.04482	-2.66702	-1.66702	-0.66702	0.33298	-0.66702
-0.35875	-2.35476	-0.35876	-0.35876	0.64124	-3.85159	-2.85159	-1.85159	-0.85159	0.14841
					VISIBILITY+4				
					***************************************				
0.9864	-C.C1360	-9.01360	-0.01360	-0.01360	1.86346	C.86346	-0.13654	-1.13654	-2.13654
-C+11524	(.98476	-0.01524	-0.01524	-0.11524	0.36358	1.36358	0.36358	-0.63642	-1.63642
-0.05623	-0.05623	0.94317	-0.05623	-0.05623	-1.11178	-G.11178	0.88892	-0.11138	-1.11108
-0.66057	-0.26767	-7.06067	0.43433	-0.06067	-2.44269	-1.49264	-0.49269	0.50731	-0.49269
-U.48566	-0.48566	-0.49566	-0,48566	0.51434	-3.77392	-2.77392	-1.77392	-0.77392	0.22603
					VISIHIL   174-6				
0 0044	_ ^1444	-0.01550		-0.01559	2.28110	1.28110	0.28110	-0.71890	-1.71890
0.98441	01459	-0.01559	-0.01559	-0.01749	0.66916	1.66916	0.66916	-0.33064	-1.33084
-0.36449 -0.36449	09251	-0.01749 0.43551	-C.01749 -C.06449	-0.06449	-0.41188	0.08812	1.08812	0.08812	-0.91188
-0.06959	~C.UG#49	-3.06459	2,93741	-0.06959	-2.37902	-1.37902	-0.37902	0.62098	-0.37902
-0.08999	~( + 45 #59 ~( ) \$5646	-11. 15876	-1.5569u	0.44334	-3.72326	-2.72326	-1.72326	-0.72326	0.27674
-11 1 1 1 P 1	מדטני ( זי	17. 770 76	-,,,,,,,,	0.44,04	- 7.72 32 11				U 7 4 1 4

#### WASHINGTON NATIONAL AIRPORT

HEIDKE LOSS HATRIX

#### YERNON LOSS MATRIX

#### CEILING+2

0.99858	-0.00142	-0.00142	-0.00142	-0.00142	1.11979	0.11979	-0.88021	-1.88021	-2.88021
-0.00584	0.99416	-0.00584	-0.00584	-0.00584	-0.17526	0.82674	-0.17526	-1.17526	-2.17526
-0.01808	-0.01808	0.98192	-0.01808	-0.01808	-1.46107	-0.46107	0.53893	-0.45107	-1.46107
-0.32842	-C.02842	-0.02842	0.97158	-0.02842	-2.71031	-1.71831	-0.71831	0.28169	-0.71831
-0.32238	-0.32238	-0.32238	-0.32238	0.67762	-3.93063	-2.93063	-1.93063	-0.93063	0.06937
					CEILING+3				
0.99836	-0.00164	-2 20144	0.00144						
-0.00690	0.99310			-0.00164	1.38021	0.38021	-0.61979	-1.61979	-2.61979
-0.02176	-0.02176	¢.97824	-0.00690 -0.02176	~0.00690	0.01440	1.01640	0.01640	-0.98360	-1.98360
-0.03457	-0.03457		0.96543	-0.02176	-1.33618	-0.33618	0.66382	-0.33613	-1.33618
-0.38579	-C.3H579			-0.03457	-2.45334	-1.45394	-0.65336	0.34664	~3.65336
		313.7317		0.61421	-3.91433	-2.91423	-1.91433	-0.91433	0.08547
					CEILING+5				
0.00100									
0.99798	-0.00202	-0.00202	-0.00202	-0.00303	1.81055	0.41055	-0.15 44	-1.18045	-2.18945
-0.00854	0.99146	-0.00854	-0.00854	-0.00854	0.33330	1.33330	0.3 30	-0.46670	-1.66670
-0.02695 -0.04281	-6.62695	0.97305	-0.02695	-0.07675	-1.12923	-0.12723	0.87077	-0.12923	-1.12923
-0.47763	-0.04281	-0.04281	0.95719	-0.04241	-2.54533	-1.54533	-0.54533	0.45467	-0.54533
-0.41103	-0.47763	-7.47763	-0.47763	U.52237	-3.88767	-2.48757	-1.88767	-0.86767	0.11233
					**** **** *				
					CEILING+7				
0.99773	-0.00227	-0.03227	-0.00227	~0,00227	2.16005	1 14005			
-0.00958	0.99032	-0.00968	-0.00968	-0,00968	0.34048	1-16005	0.16065	-0.83945	-1.83995
-0.03056	-0.03054	0.96944	-0.03054	-0.03056	-0.96114	1.59069	0.59068	-0.43932	-1.40932
-2.04854	-0.04854	-0.04854	0.95146	-9.04854	-2.42759	-1.45759	1.03886 -G.45759	0.03886	-0.96114
-0.54143	-0.5+193	-0.54143	-0.54193	0.45807	-3.05310	-2.96410	-1.86610	-0.86610	-0.45759
			-		,,,,,,,	-1.10010	-1.00010	-0.40510	0.13396
					A12181F11A+5				
								•	
0.00700									
0.99702	-C.00298	-0.09299	-6.00298	-0.00238	2.03514	0.63514	-0.16486	-1.16486	-2.16486
-0.00306	C.99694	-0.00306	-0.00306	-0.00306	0.36942	1.36742	0.36942	-0.63058	-1.63098
-0.00891 -0.01794	-9.03897	0.99103	-0.00897	-0.00897	-1.09117	-0.09117	0.90883	-0.09117	-1.09117
-0.52970	-0.01794 -0.52970	-0.01794	0.93206	-0.01794	-2.53676	-1.53474	-0.53678	0.46324	-0.53676
- 0.72710	-0.52910	-0.52970	-0.52970	0.47030	-3.95232	-2.95232	-1.95232	-0.95232	0.04769
					VISIBIL114+3				
0.99672	-0.00328	-0.00328	-0.00328	-0.00328	2.19204	1.19204	0.19204	-0.80796	-1.80796
-0.00327	0.99673	-0.00327	-0.00327	-0.00327	9.43554	1.63556	0.63554	-0.25444	-1.36444
-0.01086	-0.01086	0.98914	-0.01086	-0.01086	-0.41527	0.08473	1.08473	0.08473	-0.91527
-0.02080	-0.02080	-0.0208¢	0.97920	-0.02080	-2.44732	-1.44732	~0.44732	0.55268	-0.45732
-0.61217	-0.61217	-0.61217	-0.61217	0.38783	-3.94542	-2.94342	-1.94342	-0.94342	0.05658
					_				********
				,	\12101511A+2				
0.99614	-0.00361	-0.00381	-0.00161	-0 00341					
-0.00378	0.99622	-0.00381 -0.00378	-C.00381 -0.00378	-0.003#1	2.71235	1.71235	C.71235	-0.28765	-1.22765
-0.01260	-0.01260	0.98740	-C.01260	-0.00378	1.02380	2.02380	1.02380	0.02380	-0.47620
-6.02416	-0.02416	-0.07416	0.97584	-0.07416	-3.651/9	0.34221	1.34271	9.34221	-0.65779
-0.71076	-0.71070	-0.71070	-0.71070	0.28930	-2.31617	-1.31617	-0.31617	0.68383	-0.31617
•		*******	-0111010	0.76733	-3.93004	-2.93004	-1.73004	-0.93004	0.06996
					412181L114+7				
					· · · ·				
_					_				
0.99589	-0.00412	-0.00412	-0.00412	-0.00412	1.03444	2.03644	1.03844	2 03444	-2 9/34/
-0,00438	99592	-9.004UR	~0.07408	-0,00408	1.26560	2.26560	1.73844	0.03644	-2.96356
0.61359	-0.01359	2.98641	-0.01359	-0.81359	-0.49743	0.50255	1.50255	1.26550 1.50255	-0.73440
-0.02621	-0.02621	-0.02621	0.47379	-0.02621	-2,23455	-1.23455	-0.23455	0.76545	-0.49745
-0.76758	-0.76758	-0.76158	-C. 78758	0.23242	-3.92159	-2.97159	-1.92154	-0.92159	0.07841
					24.4434		1 . 76 1 77	V. 7(174	201 1041

#### WESTOVER AFB. CHICOPEE. MASS.

CEILING+2

HEIDKE LOSS MATRIX

#### VERNON LOSS MATRIX

					021211012				
0.99328 -0.01139 -0.03282 -0.07311 -0.26951	-0.00672 0.98861 -0.03282 -0.07311 -0.26951	-0.00672 -0.01139 0.96718 -0.07311 -0.26951	-0.00672 -0.01139 -0.03282 0.92689 -0.26951	-0.00672 -0.01139 -0.03282 -0.07311 0.73049	1.09932 -0.20471 -1.49052 -2.72384 -3.84020	0.09932 0.79529 -0.49052 -1.72384 -2.84020	-0.90068 -0.20471 0.50948 -0.72384 -1.84020	-1.90068 -1.20471 -0.49052 0.27616 -0.84020	-2.90048 -2.20471 -1.49052 -0.72384 0.15980
					CEILING+3				
0.99174 -0.01375 -0.04084 -0.09028 -0.33118	-0.00826 0.98625 -0.04084 -0.09028 -0.33118	-0.00826 -0.01375 0.95916 -0.09028 -0.33118	-0.00826 -0.01375 -0.04064 0.90972 -0.33118	-0.00826 -0.01375 -0.04084 -0.09028 0.66882	1.40259 0.01459 -1.35062 -2.64807 -3.79575	0.40259 1.01459 -0.35062 -1.64807 -2.795/5	-0.59741 0.01459 0.64938 -0.64807 -1.79575	~1.59741 ~0.98541 ~0.35062 0.35193 ~0.79575	-2.59741 -1.98541 -1.35062 -0.44607 0.20425
					CEILING+4				
0.98979 -0.01701 -0.05052 -0.11167 -0.40979	-0.01021 0.98299 -0.05052 -0.11167 -0.40979	-0.01021 -0.01701 0.94948 -0.11167 -0.40979	-0.01021 -0.01701 -0.05052 0.88833 -0.40979	-0.01021 -0.01701 -0.05052 -0.11167 0.59021	1.82883 0.32291 -1.15326 -2.54112 -3.73376	0.82883 1.32291 -0.15324 -1.54112 -2.73376	-0.17117 0.32291 0.84674 -0.54112 -1.73376	-1.17117 -0.67709 -0.15326 0.45886 -0.73376	-2.17117 -1.67709 -1.15326 -0.54112 0.26624
					CFILING+6				
0.98847 -0.01919 -0.04157 -0.14145 -0.46254	-0.01153 0.98081 -0.04157 -0.14145 -0.46254	~0.01153 ~0.01919 0.95843 ~0.14145 ~0.46254	-0.01153 -0.01919 -0.04157 -0.85855 -0.46254	-0.01153 -0.01919 -0.04157 -0.14145 0.53746	2.19028 0.58833 -0.97825 -2.46822 -3.69750	1.19028 1.58833 0.02175 -1.46822 -2.69750	0.19028 0.58833 1.02175 -9.46822 -1.69750	-0.80972 -0.41167 0.02175 0.53178 -0.69750	-1.80972 -1.41167 -0.97825 -0.46822 0.30250
					VISIBILITY+2				
0.94055 -0.01000 -0.93292 -0.03827 -0.38546	-0.00945 0.99000 -0.03292 -0.03827 -0.38546	-0.00945 -0.01000 0.96708 -0.03#27 -0.38546	-0.00945 -0.01300 -0.03292 0.96173 -0.38546	-0.00945 -0.01000 -0.03292 -0.03827 0.61454	1.31545 -0.03170 -1.36365 -2.64562 -3.86949	0.31545 0.96830 -0.36365 -1.64562 -2.86949	-0.68455 -0.03170 0.63635 -0.64562 -1.86949	-1.68455 -1.03170 -0.36365 0.35438 -2.86949	-2.48455 -2.03170 -1.36365 -0.64562 0.13051
					A12191F11A+3				
0.98927 -C.01164 -0.03953 -0.04648 -0.46244	-C.01073 0.98836 -1.03953 -C.C4648 -0.46244	-0.21073 -9.01164 0.96047 -0.04648 -2.46244	-0.01073 -0.01164 -0.03453 0.95352 -0.46244	-0.01073 -0.01164 -0.03453 -0.04648 0.53756	1.69981 0.25084 -1.17910 -2.54443 -3.83378	0.69981 1.25084 -0.17910 -1.54443 -2.83378	-0.30019 0.25084 0.82090 -0.54443 -1.83378	-1.30019 -0.74916 -0.17510 0.45557 -0.83378	-2.30019 -1.74914 -1.17910 -0.54443 0.16622
					VISIBILITY+4				
0.98729 -0.01348 -0.04434 -0.05154 -0.51918	-0.01271 0.98652 -0.04434 -0.05154 -0.51918	-0.01271 -0.01348 0.95566 -0.05154 -0.51918	-9.01271 -0.01348 -0.04434 0.94846 -0.51918	-0.01271 -0.01348 -0.64434 -0.05154 0.48082	1.98877 0.46392 -1.03795 -2.46426 -3.80271	0.98877 1.46392 -0.03795 -1.46426 -2.80271	-0.c1123 0.46392 0.96205 -0.46426 -1.80271	-1.01123 -0.53508 -0.03795 0.53574 -0.80271	-2.01123 -1.53608 -1.03795 -0.46426 0.19729
				,	VISIBILITY+6				
0.98534 -0.01553 -0.05115 -0.05948 -0.59898	-C.01466 0.98447 -0.05115 -0.05948 -C.59898	-0.01466 -0.01553 0.94885 -0.05948 -0.59878	-0.01466 -0.01553 -0.05115 0.94052 -0.59898	-0.01466 -0.01553 -0.05115 -0.05948 0.40102	2,45151 0.30454 -0.81414 -2,33967 -3,75687	1.45151 1.80454 0.18585 -1.33967 -2.75687	0.45151 0.80454 1.18586 -0.33467 -1.75687	-0.54849 -0.19546 0.18586 0.66033 -0.75687	-1.54849 -1.19546 -0.81414 -0.33967 0.24313

#### ATLANTIC CITY, N.J. AIRPORT

HEIDKE LOSS MATRIX

#### VERNON LOSS MATRIX

0.98651	-0.01349	-0.01349	-0.01349	-0.G1349	1.227:)0	U.22700	-0.77300	-1.77300	-2.77300
-0.01908	0.98092	-0.01908	~0.01908	-C.O19C8	-0.09736	0.90264	-0.09736	-1.09736	-2.09736
-0.02732	-0.02732	0.97268	-0.02732	-0.C2732	-1.39407	-0.39407	0.60593	-0.39407	-1.39407
-C.03926	-C.03926	-0.03926	0.96074	-0.O3926	-2.65116	-1.65116	-C.65116	0.3486	-0.65116
-0.37532	-0.37532	-0.37532	-0.37532	0.62468	-3.85134	-2.85134	-1.85134	-0.85134	0.14866
					CEILING+%				
0.9#352 -C.02333	-C.01648 0.97667	-0.01648 -0.02333	-C.01648 -0.02333	-0.01648 -0.02333	1.60016	0.60016	~0.39984 0.17715	-1.37984 -0.82285	-2.39984 -1.82285
-0.03339	-0.03339	0.96661	-0.03339	-C.03339	-1.20978	-0.20978	C.79022	-0.20978	-1.20978
-0.04796	-0.04796	-0.04796	0.95204	-0.04796	-2.54507	-1.54507	-0.54507	0.45493	-0.5450?
-0.45876	-0.45876	-0.45876	-0.45876	0.54124	-3.80616	-2.80616	-1.80616	-0.80616	0.19384
			4		CEILING+7				
0.98175	-0.01825	-0.01825	-0.01825	-0.01#25	1.87712	0.87712	-0.12288	-1.12288	-2.12288
-0.02588	0.97412	-0.02588	-0.02588	-0.02588	0.38089	1.38069	0.38089	-0.61911	-1.61911
-0.03700	-0.03700	0.96300	-0.03700	-0.03700	-1.07301	-0.07301	0.92699	-0.07301	-2.07301
-0.05316	-C.05318	-0.05318	0.94682	-0.05318	-2.46638	-1.46638	-0.46638	0.53362	-0.46638
-0.50883	-C.50883	-0.50883	-0.50883	0.49117	-3.77274	-2.77274	-1.77274	-0.77274	0.22726
				•	/ISIBILITY+3				
0.98158	-0.01842	-0.01842	-0.01842	-0.01642	1.73255	0.73255	-0.26745	-1.26745	-2.26745
-0.01183	0.98817	-0.01183	-0.01183	-0.01183	0.29470	1.29470	0.29470	-0.70530	-1.70530
-0.02012	-0.02012	0.97986	-0.02012	-0.02012	-1.12477	-0.12477	C.87523	-0.12477	-1.12477
-0.02220	-0.02220	-0.02220	0.97730	-0.02220	-2.51299	-1.51299	-0.51299	0.48701	-0.51299
-0.52796	-0.52796	-0.52796	-0.52796	0.47704	-3.86671	-2.86671	-1.86671	-0.86671	0.13329
					AIZIRIFILIIA+2				
0.97848	-0.02152	-0.02152	-0.02152	-0.02152	2.21075	1.21075	0.21075	-0.78925	-1.78925
-0.01383	C.98617	-0.01383	-0.01383	-0.01383	0.65233	1.65203	0.65203	-0.34797	-1.34797
-0.02354	-0.02354	0.97646	-0.02354	-0.02354	-0.88325	0.11675	1.11675	0.11675	-0.88325
-0.02598	-0.02598	-0.02598	0.97402	-0.02598	-2.37865	-1.37865	-0.37665	0.62135	-0.37865
-0.61777	-0.61777	-0.61777	-0.61777	0.38223	-3.83093	-2.83003	-1.83003	-0.63003	0.16997
				,	V15181L117+7				
0.97662	02338	-9.02338	-0.02338	-0.02338	2.52130	1.5217,	0.52136	-0.47864	-1.47864
-0.01505	0.98495	-0.01505	-0.01505	-0.01505	0.88413	1.88413	0.88413	-0.11587	-1.11587
-0.02558	-0.02558	0.97442	-0.02558	-0.02558	-0.72637	0.27363	1.27363	0.27363	-0.72637
-0.02825	-0.02825	-0.02825	0.97175	-0.02625	-2.29143	-1.29143	-0.79143	0.70857	-0.29143
-0.67198	-0.67198	-9.67198	-0.67198	0.32807	-3.89630	-2.80630	-1.80630	-0.80630	0.19370

#### IDLEWILD INTERNATIONAL AIRPORT

HEIDKE LOSS MATRIX

#### VERNON LOSS MAIRIX

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0.99592	-0.00408	-0.02468	-0.00408	-0.00408	1.15175	0.15175	-0.84875	-1.84825	-2.84825
-0.01190	C.98811	-0.01190	-0.01190	-0.01122	-0.15495	(-84515	-0.15485	-1.15485	-2.15485
-0.02141	-0.02141	0.97859	-0.02141	-0.02141	-1.44328	-0.44378	C.55672	-0.44328	-1.44328
-0.03556	-0.03556	-0.03556	0.96444	-0.03556	-2.699`C	-1.69900	-0.49900	2.30100	-0.69900
- 0.33662	-0.33662	-0.33662	-0.33662	0.66338	-3.90040	-2.90040	-1.9734(	-0.90040	0.09962
					CEILING+3				
C.995.4	-0.00496	-0.00496	-0.00496	-0.00496	1.41139	0.41109	-0.58841	-1.58891	-2.58891
-0.01395	L.98605	-0.01345	-0.01395	-0.01345	0.03570	1.03570	0.33570	-0.96430	~1.96430
-0.02475	-0.02475	0.97525	-0.02475	-0.22475	-1.31734	-0.31734	C.68266	-0.31734	-1.31734
-C.04144 39355	-0.04149 -0.39355	-0.04149	0.95851	-0.04149 0.60645	-2.63075 -3.87771	-1.63015	-0.63.75 -1.97771	0.36925	-3.63075 0.17229
, • • • • • •	0.,,,,,	- 7. 1. 1. 1. 1	-9637333	0.00043	-3.07771	-2.01111	-1.57771	-0.61711	0.17227
					CEILING+5				
0.44402	00609	. 0. 0010	0.00500	2 60500				. 20004	3 30036
-0.01681	-J.00598 (.98319	~0.03548 ~0.01681	·0.00598 -`.01681	-0.00598	1.79992	0.79992	-C.2COC8	-1.20008	-2.20005 -1.67890
-0.02982	-0.02982	0.97018	-0.02982	-0.02982	-1.17927	-0.12922	0.87378	-0.12922	-1.12922
-0.04996	-0.04996	-9.04996	C.95004	-0.04996	-2.52899	-1.52899	~6.52849	0.47101	-0.52699
-0.47418	-0.47418	-7.47418	-0.47418	0.5258?	-3.84405	-2.84405	-1.84405	-0.84405	0.15595
					CEILING+/				
C.99328	-1.00672	-9.09672	-0.00672	-0.00672	2. 1879	1.19879	1.15879	-0.89121	-1.89121
-0.01895	3.98115	-0.01845	-0.01885	-0.01885	0.54783	1.54783	0.54783	-0.45217	-1.45217
-0.03345 -0.05544	-6.03345 -6.05599	0.96655	-0.03345 0.94401	-0.03345 -0.05597	-0.47977 -2.44814	0.02023 -1.44814	1.72023	0.02023 0.55186	-0.47977 -0.44814
-0.51262	-0.53202	-9.53202	-0.53202	0.46798	-3.81735	-2.81735	-1.81735	-0.81735	2.18265
				,	AIZIHIFI1A+5				
0.99414	-7.00586	-7.77546	~6.00586	-0.00586	1.70770	C.70770	-0,29230	-1.29230	-2.29230
-C.CO742	9.99258	-7.00742	-0.00742	-0.66742	0.27268	1.27268	0.2726R	-0.72732	-1.72732
-0.01146	-0.01196	0.98804	-2.01196	-0.01196	-1.15089	-0.15089	0.84911	15089	-1.15089
-0.01923 -0.53189	-0.61923 -C.53189	-7.01923 -2.53189	0.98077 -0.53189	-0.01923	-2.55673	-1.55603	-0.55603	0.44397	-0.55603
(,	-0.33164	-2.77101	-4.33164	0.46911	-3.93155	-2.93155	-1.93155	-0.93155	0.96845
				i	VIS181L11Y+3				
0.99263		-0.00737		0 10212					
-0.00826	-3.00737 6.99174	-0.00826	-0.00737 -0.00926	-0.00737 -0.00826	2.084 <i>1</i> 4 0.55769	1.08974	0.68474	-0.91026	-1-91026
-C.01421	-5.01421	0.98579	-C.01421	-0.01421	-0.96077	0.03923	1.03923	-0.44231 0.03923	-1.44231 -0.96077
-0.02303	-0.02303	-0.02303	C-97697	-0.02303	-2.45584	-1.45584	-0.45584	0.54416	-0.45584
-0.60863	-0.60863	-0.67843	-0.60863	0.39137	-3.91302	-2.91302	-1.91302	-0.41302	0.08698
				,	w15181L117+5				
6 6011									
11190.3 -6.36967	-G.00863 0.99033	-0.00863	-6.00863	-0.60863	2.62396	1.62396	C-62346	-0.37604	-1.37604
-0.30467	-0.01661	-0.00767 0.98339	-0.00967 -0.01661	-0.(0967 -0.01661	0.95590 -0.64548	1.95593	0.95590	-0.34410	-1.04410
-0.02694	-(.02694	-2.02644	C.97326	-6.62694	-2.31672	).30492 -1.31672	1.37492	0.30492 0.68329	-0.69508 -0.31672
-0.711))	-0.71199	-7.71199	-7.71139	0.28501	-3.89010	-7.89083	-1.49046	-3.890#0	3.10923
				,	/ISIBIL11Y+1				
0.74059	-3.00731	-0.99931	-0.00931	-0.00931	2.75656	1.95656	0.95656	-0.05344	-1.04344
-0.01042	6.98958	-0-01342	-0.01042	-0.01342	1.20365	2.20385	1.273#5	0.20385	-0.79615
-0.01794	-0.01794	0.94206 -0.029c2	-0.01794	-0.01744	-0.57966	6.47034	1.47014	0.47034	-0.52966
-0.76847	-0.02472	-0.02962	0.91098 -0.18842	-0.02932	-2.23010 -3.47702	-1.23010 -2.87702	-0.23610	7.76990	-3.23013
		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	0 • · · · · · · · · · · · · · · · · ·	01171.2	- 1. 11/97	-2.51162	-1117	-9.87m)	0.12294

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#### OFFHITE AFB. IJMAHA, NEBRASKA

HEIDKE LUSS MATRIX

VERNON LOSS MATRIX

#### CEILING+2

0.99720	-(.00280	-3.09280	-0.01280	-0.0528°	1.00020	0.00023	9RYPU_9-	-1.44980	-2.99990
-0.01715	0.98265	-0.01715	-0.01715	" - O 715	-0.27136	0.72864	-C.27136	-1.27136	-2.27136
-0.01230	-0.01230	2.98770	-0.01230	-0-01230	-1.51703	-(.51703	C.48297	-0.51703	-1.51703
-0.04913	-0.04913	-0.04913	0.95087	-6.04913	-2.74413	-1.74413	-0.74413	0.25587	-0.74413
-0.28402	-0.28402	-0.28402	-3.28402	0.71598	-3.89708	-2.89708	-1.8970#	-0.89708	0.10292
						_			
					CEILING+4				
0.99615	-0.00385	-0.00385	-0.00385	-0.00385	1.45063	0.45063	-0.54937	-1.54937	-2.54937
-0.02363	0.97637	-0.02363	-0.02363	-U.C2363	0.05677	1.05677	0.05677	-0.94323	-1.94323
-0.01694	-0.01694	0.98366	-C.01694	-0.01694	1.29953	-0.29753	0.70047	-0.29953	-1.29953
-0.06764	-0.06764	-0.06764	0.93236	-0.06764	-2.62889	-1.62889	-0.62889	0.37111	-0.62889
-0.39107	-0.39107	-0.39107	-6 39107	0.60893	-3.85070	-2.85070	-1.85070	-0.85070	0.14939
			0 3/101	0.00077	- 328 3070	-2181010	-1.63370	-0.65070	0.14733
					CEILING+6				
0.99544	-0,00456	-0.00456	-0.30456	-0.C0456	1 74014	.) 7807-	-0 3103:	-1 21021	_3 3145
-0.02801	0.97199	-0.02801	-0.02801		1.78976	0.78976	-0.21024	-1.21024	-2.21024
-0.02036	-0.02006	0.97944	-0.02006	-0.02801	0.30392	1.30382	C.30387	-0.69618	-1.69618
-(.08020	-0.08020	-0.05020	0.91489		-1,13575	-0.13575	0.86425	-0.1,575	-1.13575
-0.46349	-0.46349	-0.46349	-0.46349	-0.0802° 0.53651	-2.54213	-1.54213	-0.54213	0.45787	-0.54213
******	-0.40,44		-0.40349	0.73671	-3.81578	-2.81578	-1.81578	-0.81578	0.16422
					AIZIPIF LIA+5				
0.99662	-0.00338	-0.00338	-0.00338	-0.00338	1.43410	6.43412	-0.56540	-1.56590	-2.56590
-0.00458	0.99542	-0.03458	-0.00458	-0.00458	0.06749	1.06749	0.76749	-0.93251	-1.93251
-0-01289	-0.01289	0.98711	-0.01289	-0.01289	-1.29210	-6.29210	0.70796	-0.24510	-1.29213
-C.01615	-0.01615	-0.01615	0.98385	-0.C1615	-2.631AR	-1.63188	-0.63188	0.36812	-0.63168
-0.44714	-0.44714	-0.44714	-0.44714	0.55284	-3.94686	-2.94686	-1.94686	-0.44686	0.05314
		•••••		•••	36 740	-2.74000	1. 74000	-0.94000	01.7714
					VISIBIL 11Y+4				
0.99557	-0.00443	-9.93443	-0.33443	-6.60443	2.04372	1.04322	0.04322	-0.95678	-1.95678
-0.00544	0.99401	-0.00549	-0.00599	-0.00579	0.52049	1.52089	0.52049	-0.47911	-1.47911
-0.01686	-0.01636	7.98314	-0.01686	-0.01686	-0.99142	0.00858	1.00858	C.00858	-0.99142
-0.02111	-0.92111	-0.02111	7.97989	-0.02111	-2.47552	-1.47552	-0.47552	0.52448	-0.47552
- 2.58474	-0.58474	-9.58474	-1.55474	0.41526	-3,92429	-2.92428	-1.92428	-9.92428	0.07572
									-
					V15181L11Y+A				
0.99446	-6.0,504	-0.00554	-0400504	-0.00504	2.44143	1 4.143	0 44143	-0 6645	-1 65957
-C.00682	1.99318	-0.00532	-0.03682	-0.00504	0.8173	1.44143	0.44143	-0.55857	-1.55857
-0.01918	-(.01918	0.98062	-0.0087	-6.01915	-0.79485	0.20515	1.20515	-0.18270	-1.18270
-0.024.4	-0.02404	-0.224,4	.97596	-Ú. L2404	-2.3733^	-1.37330	-0.17336	0.62670	-0.79485 -0.37330
-0.66559	-0.65559	-0.66559	-0.66559	6.33441	-3.93952	-2.90952	-1.90952	-3.90952	0.09348
		21.00777	0.00///	*******	- 1,79472	-444 1952	- F + 41, 435	-7.40425	0.07348

#### MANDOLPH AFR. SAN ANTONIO, TEXAS

HEIDKE LOSS MATRIX

#### VERNON LOSS MATRIX

#### CEILING+2

	_						0.14314	-0.85786	-1.857#6	-2.65786
0.99322	-0.00678	-0.00678	-0.00678	-0.0067A	1.14		0.14214	-0.17740	-1.17740	-2.17740
-0.00919	0.99081	-0.00914	-0.00919	-0.00919	-0.17		0.82260 -0.48219	0.51781	-0.48219	-1.48219
-0.05421	-0.05421	0.94579	-0.05421	-0.05421	-1.48 -2.70		-1.70003	-C.70001	0.29999	-0.70001
-0.06068	-0.06068	-0.06068	0.93932	-0.06368	-3.82	_	-2.82048	-1.82048	-0.82048	0.17952
-0.28104	-0.28104	-0.28134	-0.28104	0.71896	- 7.02	U+0	-2.02.040	10	0.000	
					CEILING+4					
0.99044	-0.00956	-0.00956	-0.00936	-0.00956	1.69	9505	0.69505	-0.30495	-1.30495	-2.30495
-0.01295	0.98705	-0.01295	-0.01295	-0.01295	0.2	2083	1.22083	0.22083	-0.77917	-1.77917
-0.07637	-0.07637	0.92363	-0.07637	-0.07637	-1.2		-0.23151	0.76849	-0-23151	-1.23151
-0.08549	-0.08549	-0.08544	0.91451	-0 08549	-2.5		-1.55477	-0.55477	0, 44523	-0.55477
-0.39592	-0.39592	-0.39592	-0.39592	0.60408	-3.7	3355	-2.73355	-1.73355	-0.73355	0.26645
					CEILING+6					
					001017076					
C.98862	-0.01138	-0.01138	-0.01138	-0.01138	2.10	0533	1.10533	0.10533	-0.89467	-1.89447
-0.01543	0.98457	-0.01543	-0.01543	-0.C1543	0.5	1633	1.51633	0.51633	-0.48367	-1.48367
-0.09092	-C.09092	2.90938	-0.09092	-0.09092	-1.0		-0.04547	0.95453	-0.04547	-1.04547
-0.10183	-0.1C183	-0.10185	0.89817	-0.10183	-2.44	4792	-1-44702	-0.44702	0.55298	-0.44702
-0.47150	-0.47150	-0.47150	-C.47150	0.52850	-3,66	6903	-2.66908	-1.66908	-0.60408	0.33072
					VISIBILITY+2					
0.99468	-0.00532	-0.00532	-0.00532	-0.00532	1.5	7604	0.57604	-0.42396	-1.42396	-2.42396
-0.00381	0.99619	-0.00381	-0.G0381	-0.00381		7636	1,17636	0.17636	-0.82364	-1.82364
-0.01268	-0.01268	0.98732	-0.00361	-G.01268	-1.2		-G.21723	0.78277	-0.21723	-1.21723
-0.01289	-0.01289	-0.01284	0.98711	-0.01289	-2.5		-1.59056	-0.59056	0.40944	-0.59056
-0.47612	-0.47612	-0.47612	-0.47612	0.52388	-3.9		-2.94329	-1.94329	-0.94329	0.05671
0.41012	********	*********		********	•••					
					VISIBILITY+4					
		0.00705	0.00700	-0.00700	2.2	7774	1.27734	0.27734	-0.72266	-1.72266
0.99300	-0.00700	-0.00700	-9.00700		0.69		1.69981	0.59981	-0.30019	-1.30014
-0.00500	0.99500	-0.00500	-0.00500	-0.00500	-0.8		0.13106	1.13106	0.13106	-0.86894
-0.01664	-0.01669	0.98331	-0.01569 0.99306	-0.01669	-2.40		-1.40838	-0.40838	2.59162	-0.40836
-0.01694	-0.01694	-0.62692	-0.62602	0.37398	-3.9		-2.91808	-1.91806	-0.91806	0.08194
-0.62602	-3-62602	-0.626-12	-107602	0.57576	- 7	, .				
					VISIBILITY+6					
					- · · · · ·					
0.99216	-6.22784	-0.90784	-C.00784	-0.C0784	2.6	7827	1.67827	0.67827	-0.32173	-1.32173
-0.00562	9.19438	-0.00562	-0.01562	-0.00567	0.9	9905	1.99905	0.99905	-0.00095	-1.00095
-0.01869	-0.0.469	0.98131	-0.01869	-0.01869	-0.6	6980	0.33020	1.33020	0.33020	-0.66980
-0.01990	-0.011100	-0.01900	C.981GO	-0.01900	-2.3	0420	-1.30420	-0.30420	0.69580	-0.30420
-9.70133	-9.73133	-P.76133	-^.70133	0.29867	-3.9	0357	-2.90357	-1.90357	-0.90357	0.09643

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TABLE 2-4 VERNON'S SCHEME OF DEMERITS

			ОЬ	served		
		1	2	3	4	5
	1	0	1	2	3	4
4-	2	1	0	1	2	3
Forecast	3	2	1	0	1	S
Fore	14	3	2	1	0	1
	5	4	3	2	1	0

where r<sub>i</sub> is the total number of times that class i is forecast, n<sub>ij</sub> is the number of times that class j is observed when class i is forecast, p<sub>i</sub> is the climatological probability of class j, and d<sub>ij</sub> is the demerit ascribed to the error of forecasting category i when category j is observed. The demerits are displayed in Table 2-4.

The method for obtaining the weights to maximize the score was also devised under this contract by Bryan [4]. The sets of 25 weights for each of 42 predictands are given in Table 2-3, also.

#### 2.2 Verification of Test Forecasts

The weight functions discussed above were applied to probability forecasts to produce categorical forecasts for four statistical techniques for the 42 predictands listed in Table 2-5. The statistical techniques are climatological expectancy of persistence (CEP), grouping, Lund, and multiple-discriminant analysis (MDA). Categorical persistence and subjective forecasts for the same 42 predictands were available also. The forecasting skill of the six techniques on all 42 predictands were measured by three scores: percentage of hits, Heidke skill score, and Vernon skill score.

To aid in analyzing the scores, two quantities [7], I and t, were computed. The index I is a measure of the amount of increase or decrease in forecasting skill of one technique relative to another technique. The paired-comparison t-value tests whether the mean score for one forecast technique is statistically significantly different from the mean score of another technique.

#### 2.2.1 Percentage of Hits

The percentages of hits for six forecast techniques for 42 predictands are given in Table 2-5. The MDA forecasts achieved the highest score on 24 of the 42 predictands, CEP was high on eight, and high scores on the remaining 10 predictands are ties or are spread among the other forecast techniques.

For the percentage-of-hits score, the index I is

$$I = \frac{PH_{S} - PH_{PST}}{100 - PH_{PST}} \times 100,$$
 (2-8)

where PH<sub>S</sub> and PH<sub>PST</sub> indicate statistical and persistence percentage of hits, respectively. Values of I for the "average-over-station" percentages of hits and the "average-over-all-stations" are presented in Table 2-6. The MDA technique yielded the highest values on all six averages and on the overall average. For all techniques, there is a consistent improvement in the index with increasing forecast length. The index I for MDA increases from 6.9 to 22.1% for ceiling forecasts and from 11.4 to 32.7% for visibility forecasts. For all predictands combined, the increase of MDA over persistence

# TABLE 2-5 PERCENTAGE-OF-HITS TEST RESULTS FOR CATEGORICAL FORECASTS FOR EVALUATION-YEAR DATA

(a) Predictand element is ceiling

Pr	edictand		<u></u>		Percenta	ge of hits		-
Sta	Fost length, hr	No. of fcsts	Pers	Subj	CEP	Group	EunJ	MOA
ACY CEF DCA IDL OFF RND WRI	3 3 3 3 2 2 2 2 2	681 650 541 1,283 694 692 011	87.22 83.38 91.68 87.14 89.77 60.78 83.80	86.05 84.46 90.02 87.45 86.60 13.50 81.51	86.93 86.31 90.57 87.30 89.77 81.21 83.14	85.70 85.08 91.31 86.20 85.77 77.75	75.18 83.38 81.19 767 81.29 78.76	37.37 97.89 91.60 91.76 90.20 130.09
Mean	2-3	5,152	86.26	85.19	26.49	36.01	7.16	27.21
ACY CEF OCA IDL OFF RND WRI	5455444	651 655 544 1,451 652 680 519	81.18 79.51 90.07 81.91 83.59 71.47 71.47	85.25 75.39 88.97 83.32 83.90 77.06 80.15	**************************************	7.1 .9.69 91.36 93.37 22.21 73.07 33.25	1.10 20.11 20.12 20.53 20.53	77 74.36 96.31 74.85 94.20
Mean	4-5	5,152	81.39	32.59	32.⊌€	≎.34	11.5%	Ç¥.14
ACY CEF DCA IDL OFF RND WRI	76 77 66 . 6	676 669 691 1,452 664 678 519	36.47 73.59 86.34 78.24 82.23 65.93 76.30	&.16 78.77 93.29 91.32 81.33 71.78 79.98	32.10 16.25 38.69 81.79 74.53	ランタの である。 できる。 できる。 できる。 できる。 できる。 できる。 できる。 でき	1.70 1.70 13.26 13.01 13.11 13.20 13.20	31.52 31.12 31.72 31.72 31.72 32.73
Mean	6-7	5,259	77.71	31.19	80.56	?0.,∪	7-1-1	€2.6

#### (b) Prodictand alamont is visibility

Pr	edictand				Percenta	go cf ints		
Sta	Fost length, hr	No. of fests 699	Cors	Sulj	CEL,	Group	បែកដ	YC).
ACY CEF DCA IDL OFF RND WRI	3 2 3 3 2 2 2	699 682 609 1,336 694 702 612	6 4 6 5 5 6 5 6 5 6 6 6 6 6 6 6 6 6 6 6	8.41 25.45 4.5. 31.59 21.46 21.46	\$6. \(\) \$5.19 \$2.\(\) \$0.16 \$0.16 \$0.12 \$0.22 \$2.17 \$2.3	86.95 35.50 32.12 39.6 52.36 51.5 20.5	326 6.17 92.17 92.16 91.15 31.15	87.49 24.49 24.57 24.57 24.57 24.57
Mean	2-3	5,334	33.19	2;.12	34.02	371	3.7	39.5%
ACY CEF DCA IDL OFF RND WRI	がまない。 また	663 672 696 1,311 693 682 51 <sup>1</sup> 1	%,22 81.76 91.38 %,5 カ.: カ.: カ.メ か.68	90.20 80.35 90.12 90.12 50.00 10.00	ж.8c %.3c 93.27 %.5; 11.77 5:01 76.16	39.7. 31.3. 33.1. 33.1. 3.3. 91.3. 3.3.	(4) (4) (4) (4) (4) (4) (4) (4) (4) (4)	92.27 93.68 93.68 93.66 95.16 95.16
Mean	4-5	5,231	86.80	86.96	89.14	80.8%	93.20	89.5
ACY CEF DCA IDL OFF RND #RI	7677666	657 639 713 1,338 618 622 517	85. 71 78.25 91.44 94.58 90. 78 89.74 76.21	88.89 80.91 91.44 85.13 91.10 92.67 76.02	91.17 81.69 94.81 89.46 93.20 95.16 81.62	92.24 79.81 94.95 89.51 93.37 94.15	81.35 56.65 52.48 81.79 75.51	72.39 92.00 54.71 79.46 93.20 96.01 71.47
Moan	6-7	5,16 <sup>h</sup>	85.19	86.75	30.07	37,25	વા.કા	92.5

#### (c) Composite of (a) and (b) for all stations and for relets

io. of		Mean percentage of hits								
10515	Pers	Subj	ÇÜ	Group	Lund	ND4				
31,372	N1.21	84.96	86.22	85.89	70.00	47,17				

TABLE 2-6
PERCENT IMPROVEMENT (I) OF PERCENTAGE OF HITS FOR CATEGORICAL FORECASTS
RELATIVE TO PERSISTENCE FOR EVALUATION-YEAR DATA

Pr	edictand			I, %		
Elem	Fcst length, hr	Subj	CEP	Group	Lund	MOA
r:====:	2-3	-7.8	1.7	-1.8	-48.8	6.9
CIG	4-5	6.4	3.7	5.1	-20.8	14.8
	6-7	15.6	12.8	12.5	-14.5	22.1
	2-3	-8.7	9.0	2.2	-37.5	11.4
VIS	4-5	2.7	19.0	17.1	-25.4	22.0
	6-7		31.6	27.4	-24.8	32.7
All pre	All predictands		13.7	10.6	-26.7	18.7

TABLE 2-7

†-VALUES COMPARING THE MEAN PERCENTAGE OF HITS FOR CATEGORICAL FORECASTS RELATIVE TO PERSISTENCE FOR EVALUATION-YEAR DATA

Fcst length, hr		t-value						
tengin, iii	Subj	CEP	Group	Lund	MDA			
5.3	-3.20	1.80*	-0.00	-0.98	2.81†			
4.	1.33	3.21†	3.45†	-2.33	7.62†			
7.1	3.66†	6.07†	6.82†	-2.38	9.571			
All	1.74*	5.69†	5.03†	-2.86	8.70†			

\*Mean percentage of hits is significantly higher than the mean for persistence at the % level. the percentage of hits is significantly higher than the mean for persistence at the 1% level.

is 18.7%. The corresponding figure for subjective forecasts is 4.7%. However, this is caused by poorer-than-persistence forecasts at 2-3 hr being balanced by better-than-persistence forecasts at 4-7 hr.

The index I is highly dependent upon the length of the forecast period. Therefore, the scores for the same forecast length for the same technique were considered, 14 scores in all, and a paired-comparison t-test was applied to determine whether the mean of the 14 scores for one technique was statistically significantly different from the mean score for another technique. Values of t, comparing all techniques with persistence, are given in Table 2-7. The mean MDA score is statistically significantly higher than the mean persistence score at the 1% level at all three forecast lengths and for all predictands combined; CEP is better at the 5% level for 2-3 hr and at the 1% level for other time periods and over all; grouping is better at 4-7 hr and over all; subjective is better at 6-7 hr and over all. The t-test was applied to compare MDA with CEP, the second-best technique. MDA was significantly better at the 1% level for both 4-5 and 6-7 hr, but there was no significant difference at 2-3 hr. Closer investigation of the scores in Table 2-5 indicates that the improvement of MDA over CEP is larger for the ceiling forecasts than for the visibility forecasts.

Briefly, then, the MDA percentages of hits are higher than those for any other technique, the CEP technique is second, grouping third, subjective fourth, persistence fifth, and Lund sixth. The lead of MDA over the other techniques is statistically significant beyond the 1% level, the only exception being 2-3-hr CEP scores.

#### 2.2.2 Heidke Skill Score

'Ł

The scores for 42 predictands for six forecast techniques are given in Table 2-8. The MDA scores were highest on 18 of the 42 predictands, subjective scores were high on 15, and persistence was high on five. The means taken over all predictands [part (c) of the table] show that the subjective scores average slightly higher than the MDA scores, then there is a gap to the CEP and persistence mean scores, and grouping and Lund trail.

For the Heidke skill score, the index I is

$$I_{j} = \frac{H_{j} - H_{PST}}{1 - H_{PST}}, \qquad (2-9)$$

where H<sub>i</sub> is the score for the jth technique and H<sub>PST</sub> is the persistence score. Table 2-9 contains the index values for the "average-over-station" values in Table 2-8. The MDA technique had the highest index on three of the six groupings, and subjective was high on the other three. For both MDA and subjective, the improvement over persistence increases with increasing forecast length. The subjective index values are not as good as MDA at 2-3 hr but are better than MDA at 6-7 hr; the scores for the intermediate period, 4-5 hr, are inconclusive. None of the technique mean scores is statistically significantly higher than the persistence mean score at 2-3 hr or at 4-5 hr; at 6-7 hr, MDA, subjective, and CEP are significantly better than persistence. Considering the means taken over all

# TABLE 2-8 HEIDKE-SCORE TEST RESULTS FOR CATEGORICAL FORECASTS FOR EVALUATION-YEAR DATA

(a) Predictand element is cailing

Pre	edictand	N 4			He i dke	score		
Sta	Fost length, hr	Mo. of fcsts	Pers	Subj	CEP	Group	l und	MDA
ACY CEF DCA I DL OFF RND WR I	3 2 3 3 2 2 2	681 650 541 1,283 694 692 611	0.600 0.636 0.615 0.577 0.712 0.619 0.612	C.583 0.656 0.578 0.593 0.636 0.588 0.567	0.595 0.700 0.563 0.582 0.712 0.616 0.595	0.557 0.656 0.590 0.542 0.712 0.609 0.636	0.457 0.619 0.421 0.401 0.527 0.584 0.601	0.600 0.727 0.613 0.55% 0.720 0.619 0.661
Mean	2-3	5,152	0.624	0.600	0.623	0.615	0.516	0.643
Percent	improvement o	over pers	-	-6.4	-0.3	-2.4	-28.7	5.1
ACY CEF DCA I DL CFF RND WR I	· 25444	651 655 544 1,451 652 680 519	0.507 0.557 0.540 0.441 0.529 0.429 0.509	C.559 O.547 C.552 C.475 O.555 O.524 C.521	0.506 0.567 0.570 0.439 0.514 0.430 0.527	c.499 c.521 c.526 c.435 o.467 o.408 c.519	C.312 C.436 O.383 O.38C O.456 C.437 C.431	0.513 0.603 0.563 0.473 0.554 0.455 0.590
Mean	4-5	5,152	0.502	0.530	0.508	0.482	0.405	0.536
Percent	improvement	over pers	•	5.6	1.2	-4.0	-19.5	6.8
ACY CEF DCA IDL OFF RND WRI	7 6 7 6 6	676 669 681 1,452 664 678 519	0.400 0.427 0.409 0.326 0.489 0.518 0.427	0.476 0.529 0.498 0.438 0.497 0.483 0.515	0.402 0.449 0.435 0.314 0.473 0.314 0.452	0.421 0.435 0.445 0.326 0.381 0.298 0.362	0.272 0.380 0.348 0.347 0.393 0.280 0.293	0.421 0.518 0.487 0.331 0.535 0.370 0.519
Mr	6-7	5,339	0.399	6.491	0.406	0.381	0.330	0.454
Pe ant	improvement	over pers	-	15.3	1.2	-3.0	-11.5	9.2

(b) Predictand element is visibility

Pre	Jictand				l!eidke	score		
Sta	Fost length, hr	Nc. of fcsts	Pers	Subj	CEP	3rcup	Lund	MDA
ACY CEF DCA IDL OFF RND WRI	3 2 3 3 2 2 2	699 682 609 1,336 694 702 612	0.351 0.507 0.201 0.299 0.479 0.375 0.559	0.365 0.542 0.240 0.396 0.428 0.356 0.502	0.327 0.474 0.200 0.307 0.438 0.335 0.566	0.300 0.543 0.150 0.263 0.438 0.365 0.520	0.196 0.233 0.161 0.242 0.391 9.277 0.488	0.326 0.647 0.209 0.320 0.374 0.403 0.568
Mean	2-3	5,334	0.396	0.404	0.378	o <b>.</b> 368	c.284	0.467
Percen	t improvement	over pers	-	1.3	-3.0	-4.6	-13.5	1.8
ACY CEF DCA 1DL OFF RND WR1	5555 5555	663 672 696 1,311 693 682 514	0.327 0.449 0.236 0.192 0.371 0.369 0.380	0.522 9.840 0.152 0.242 0.292 0.462 0.368	0.351 0.464 0.206 0.211 0.342 0.469 0.400	0.363 0.364 0.098 0.186 0.296 0.312 0.361	0.329 0.326 0.232 0.124 0.344 0.198 0.368	0.325 0.483 0.244 0.249 0.421 0.430
Mean	5	5,231	0.332	c.354	0.349	0.273	c.274	J <b>.339</b>
Percent	improvement o	cver pers	-	3.3	2.5	8.8-	-8.7	1.0
ACY CEF DCA I DL CFF RND WR I	7 7 7 7 7	657 639 713 1,338 618 682 517	0.257 0.341 0.243 0.034 0.336 0.239 0.392	0.446 0.377 0.139 0.219 0.285 0.360 0.347	0.556 0.537 0.271 0.24 0.341 0.285 0.422	0.265 0.258 0.180 0.065 0.305 0.252 0.321	0.133 0.200 0.083 0.056 0.278 0.118	0.333 0.336 0.225 0.139 0.352 0.362 0.367
Mean	7	·5,164	0.266	C.317	c.288	U-235	c.168	0.299
Percent	improvement o	over pers	-	6.9	3.0	-4.2	-13.4	4.5

## (c) Composite of (a) and (b) for all stations and forecasts

No. cf	Mean Heidke score									
fcsts			CEL	Group	l und	AIDA				
31,372	c.420	U.449	J.425	0.393	<b>0.33</b> 0	<b></b> 446				

TABLE 2-9
PERCENT IMPROVEMENT (I) OF HEIDKE SCORES FOR CATEGORICAL FORECASTS
RELATIVE TO PERSISTENCE FOR EVALUATION-YEAR DATA

Pr	redictand			I, %		
Elem	Fost length, hr	Subj	CEP	Group	Lund	MDA
	2-3	-6.4	-0.3	-2.4	-28.7	5.1
CIG	4-5	5.6	1.2	-4.0	-19.5	6.8
	6-7	15.3	1.2	-3.0	-11.5	9.2
	2-3	1.3	-3.0	-4.6	-18.5	1.8
VIS	4-5	3.3	2.5	-8.8	-8.7	1.0
	6-7	6.9	3.0	-4.2	-13.4	4.5
All predictands		5.0	0.9	-4.7	-15.5	4.5

TABLE 2-10

†-VALUES COMPARING THE MEAN HEIDKE SKILL SCORES FOR CATEGORICAL FORECASTS RELATIVE TO PERSISTENCE FOR EVALUATION-YEAR DATA

Fost length, hr	t-value									
rengin, nr	Subj	CEP	Group	Lund	MDA					
2-3	-0.633	-1.222	-2.394	-5.234	0.971					
4-5	1.310	1.345	-3.671	-4.303	1.600					
6-7	3.258†	1.876*	-2.030	-5.633	3.447†					
AII	2.562†	1.131	-4.586	-8.633	3.3401					

\*Mean Heidke score is significantly higher than the mean for persistence at the 5% level.

†Mean Heidke score is significantly higher than the mean for persistence at the 1% level.

predictands, MDA and subjective are significantly better than persistence. A t-value was computed that compares the overall means of MDA and subjective, and it was found that the two mean scores do not differ by a significant amount.

The scores in Table 2-8 were averaged by station. The means, not presented here, indicate that the MDA technique scores are highest at Washington National, McGuire, and Westover; the subjective scores are highest at Atlantic City, Idlewild, and Randolph; and persistence is best at Offutt.

Values of t, comparing the technique mean scores with the persistence mean score, appear in Table 2-10.

#### 2.2.3 Vernon Skill Score

· \*<u>,</u>

The scores for 42 predictands for six forecast techniques are given in Table 2-11. The MDA scores were highest on 18 predictands, subjective was high on 14, and the high scores for the remaining 10 predictands are spread among the other forecast techniques. The overall means [part (c) of the table] show that subjective is slightly higher than MDA; there is a gap to CEP and persistence; and grouping and Lund trail. This is the same general result achieved by the Heidke skill scores.

Values of the index I were computed in the same manner as for the Heidke score. The results are given in Table 2-12. The subjective forecasts were high on four of the six cases and on the overall averages of the 42 predictands. In general, the improvement of subjective and MDA over persistence increases with increasing forecast length, and the improvement is larger for ceiling than for visibility.

Values of t are presented in Table 2-13. At 2-3 hr, none of the mean scores is significantly better than the mean score for persistence; only subjective and MDA mean scores are significantly better at 4-5 hr, 6-7 hr, and all hours combined. A t-test value was computed to compare the overall mean scores of subjective and MDA; the value is only 0.21, so there is no significant difference between the two mean scores.

The scores in Table 2-11 were averaged over stations. Subjective was higher at Atlantic City, Idlewild, and Randolph, whereas MDA was higher at the other four stations.

# TABLE 2-11 VERNON-SCORE TEST RESULTS FOR CATEGORICAL FORECASTS FOR EVALUATION-YEAR DATA

(a) Predictand element is willing

Pred	ictand	N /			Vernon	score	<del></del>	
Sta	Fcst length, hr	No. of fcsts	Pers	Subj	CEP	Group	Lund	MDA
ACY CEF DCA IDL OFF RND WRI	3 2 3 3 2 2 2 2	681 650 541 1,283 694 692 611	0.664 0.696 0.615 0.690 0.747 0.699 0.715	0.655 0.730 0.580 0.688 0.639 0.685 0.647	0.677 0.754 0.609 0.692 0.741 0.694 0.709	0.623 0.747 0.623 0.682 0.750 0.682 0.743	0.466 0.696 0.461 0.467 0.610 0.675 0.671	0.676 0.772 0.622 0.686 0.755 0.700 0.746
Mean	2-3	5,152	0.689	0.661	0.697	0.693	0.578	0.708
Percent	improvement	over pers	-	-9.0	2.6	1.3	-35•7	6.1
ACY CEF DCA IDL OFF RND WRI	ひま でいず ギオ	651 655 544 1,451 652 680 519	0.513 0.579 0.497 0.545 0.552 0.478 0.577	0.647 0.600 0.544 0.575 0.582 0.609 0.561	0.538 0.608 0.503 0.551 0.554 0.485 0.588	0.524 0.585 0.474 0.535 0.487 0.454 0.606	0.311 0.472 0.321 0.459 0.509 0.416 0.536	0.528 0.635 0.566 0.595 0.610 0.488 0.648
Mean •	4-5	5,152	0.534	0.588	0.548	. 0.524	0.432	0.581
Percent	improvement o	over pers	-	11.6	3.0	-2.1	-21.9	10.1
ACY CEF DCA IDL CFF RND WRI	7 6 7 7 6 6	676 669 581 1,452 664 678 519	0.405 0.456 0.373 0.438 0.487 0.343 0.455	0.559 0.597 0.514 0.561 0.478 0.557 0.511	0.427 0.510 0.417 0.430 0.465 0.345 0.498	0.463 0.491 0.374 0.442 0.376 0.333	0.257 0.416 0.383 0.445 0.386 0.314 0.246	0.476 0.573 0.510 0.447 0.520 0.453 0.555
Mean	6-7	5,339	0.422	0.540	0.442	0.401	0.350	0.505
Percent	improvement o	over pers	-	20.4	3•5	-3.6	-12.5	14.4

(b) Predictand element is visibility

Pre	dictand				Vernor	sccre		
Sta	Fcst length, hr	No. of fcsts	Pers	Sub j	CEP	Grcup	Lund	PCM
ACY CEF DCA IDL OFF RND WRI	3 2 3 3 2 2 2	699 682 609 1,336 694 702 612	C.470 C.682 C.414 C.506 C.590 C.553 C.730	c.485 c.722 c.404 c.559 c.532 c.534 c.662	0.461 0.660 0.344 0.513 0.597 0.488 0.725	0.468 0.735 0.365 0.403 0.558 0.524 0.722	0.343 0.365 0.400 0.497 0.550 0.375 0.688	6.455 6.772 6.384 6.516 6.512 6.556 6.736
Mean	2-3	5,334	c.564	c.557	0.541	C.531	c.46c	J.562
Percent	t improvement	over pers	-	-1.6	<b>-</b> 5•3	-7.6	-23.8	-C.5
ACY CEF DCA IDL OFF- RND WRI	5455444	663 672 696 1,311 693 682 514	0.234 0.564 0.244 0.376 0.513 0.493	c.524 c.555 c.199 c.414 c.439 c.426 c.464	0.258 0.578 0.239 0.462 0.507 0.369 0.491	C.229 C.526 O.173 G.314 G.438 G.281 C.48C	c.246 c.368 c.225 c.253 c.485 c.485	6.222 c.586 0.258 c.437 0.503 c.468 c.533
Mean	4-5 -	5,231	0.394	C.432	c.3:06	C•349	C•318	c.417
Percent	improvement	cver pers	-	6.3	2.0	-7.4	-12.5	3 <b>.</b> 8
ACY CEF DCA IDL OFF RND WRI	7677666	657 639 713 1,338 618 682 517	0.150 0.379 0.212 0.277 0.431 0.160 0.390	0.474 0.474 0.171 0.135 0.522 0.297 0.383	0.193 0.448 0.198 0.256 0.373 0.160 0.450	c.147 o.332 o.202 o.246 o.369 o.163 o.334	0.093 0.215 -0.017 0.167 0.267 0.074 0.314	0.275 0.404 0.210 0.325 0.426 0.386
Mean	6-7 .	5,164	c.286	0 <b>.</b> 350	c.297	0.256	c.162	C.339
Percent	improvement	over pers	-	9.0	1.5	-1:-2	-1 7•4	7.4

### (c) Composite of (a) and (b) for all stations and forecasts

No. of fests		Mean Yernon score								
	Pers	Subj	CEP	Group	! und	ACI.				
31,372	c.482	c.;21	c.488	2.459	C.583	u.919				

TABLE 2-12
PERCENT IMPROVEMENT (I) OF VERNON SCORES FOR CATEGORICAL FORECASTS RELATIVE TO PERSISTENCE FOR EVALUATION-YEAR DATA

Pr	edictand			I, %		
Elem	Fost length, hr	Subj	CEP	CET	Lund	MDA
	2-3	-9.0	2.6	1.3	-35-7	6.1
C≬G	4-5	11.6	<b>3.</b> 0	-2.1	-21.9	10.1
	. 6-7	20.4	3.5	-3.6	-12.5	14.4
	2-3	-1.6	-5.3	-7.6	-23.8	-0.5
VIS	4-5	6.3	2.0	-7.4	-12.5	3.8
	6-7	9.0	1.5	-4.2	-17.4	7-4
All pro	edictands	7-5	1.2	-4.4	-19.1	7.1

**TABLE 2-13** T-VALUES COMPARING THE MEAN VERNON SKILL SCORES FOR CATEGORICAL FORECASTS RELATIVE TO PERSISTENCE FOR EVALUATION-YEAR DATA

Fcst, length, hr		t-value								
Tengin, iii	Subj	CEP	Group -	Lund	MDA					
2-3	-1.45	-0.91	-1.28	-4.13	0.77					
4-5	1.84*	3·37†	-3.15	-4.49	4,13†					
6-7	3.44†	1.51	1.85*	-4.87	4.12†					
All	2.78†	1.42	-3.46	-7.83	4.67†					

\*Mean Vernon score is significantly better than the mean for persistence at the 5% level.

†Mean Vernon score is significantly better than the mean for persistence at the 1% level.

#### 3.0 STATISTICAL TECHNIQUES

Before the evaluation started, all the statistical techniques except multiple-discriminant analysis (MDA) had been applied to other forecast problems, and it was thought that they could be applied directly to forecasting ceiling and visibility. However, in the course of the evaluation, it was found that additional work was required on the climatological-expectancy-of-persistence (CEP) and grouping techniques; less work was required on the Lund technique. Some of the work done on the three techniques is presented in this section.

The MDA technique was developed during the course of the evaluation, and details are given in the monograph by Miller [10]. However, some further developmental work was done, and this is described briefly. Finally, there seem to be no references available on the Lewis technique, so a résumé is given below.

#### 3.1 Climatological Expectancy of Persistence

Initially, a CEP forecast was considered to yield the conditional probability of the subsequent occurrence of class j of the predictand when given that class i of the predictand was observed. The development of this type of CEP technique consists in computing a single frequency-count table, such as Table 3-1. The value 79 in the first row is the number of times that ceilings below 200 ft at observation time were followed by ceilings below 200 ft 5 hr later. Other entries in the table have similar meanings. The conditional probabilities needed to make CEP forecasts are obtained by dividing each entry of Table 3-1 by its row total.

This type of CEP technique uses data from all seasons of the year and all hours of the day. To determine seasonal and diurnal influences on the CEP technique, frequency-count tables were computed for every even hour of six seasonal periods, January-February, March-April, etc. Thus, 24 tables were obtained for each predictand variable. An extensive investigation was conducted by combining various hours and seasons. It was found that there is a seasonal and a diurnal effect. However, it was also found that too fine a breakdown resulted in very small frequencies in some of the cells of the table and, thus, the corresponding conditional probabilities were not stable when applied to a new sample of data. Balancing these two factors, it was decided to stratify the dependent sample of 10 years (1949-1958) into two seasons (May-October and November-April) and then into two diurnal periods. The stratification yielded four sets of data, and for each set a forecast table was computed. A report presenting 448 such tables has been published [5].

#### 3.2 Grouping

The grouping technique is similar to the CEP technique; the major difference is the use of four variables to specify the initial condition.

The grouping technique, as it was programmed for use in A Plan for the Test and Evaluation of Terminal Forecasting Techniques [11], has the following characteristics.

TABLE 3-1 FREQUENCY COUNT OF IDLEWILD CEILINGS\*

Present ceiling	Class		later	<b>*</b>			
C, ft	J	1	2	3	4	-5	Total
C < 200	1	79	112	54	46	145	436
200 ≤ C < 500	2 .	134	<b>36</b> 8	249	191	330	1,272
500 ≤ C < 1000	3	76	321	743	570	575	2,285
1000 ≤ C < 3000	4	34	185	571	1,375	1,635	3,800
2000 ≤ C	5	151	289	645	1,608	33,289	35,962

\*Based on every other hour in 10 years beginning January 1949.

- (a) The predictors must be chosen from the elements of the standard hourly airways observations—as recorded on WBAN-10A and -10B.
- (b) Exotic predictors (i.e., predictors derived from combinations, averages, differences, etc., of the observational elements) may not be considered.
  - (c) The number of predictors cannot exceed four.
- (d) The grouping or categorization of the predictand element is specified by the test plan.
  - (e) Selected predictors must be categorized into not more than eight groups.
  - (f) The predictors must be listed in order of importance.
  - (g) The total data sample that can be handled by the program is 6000 hr of data.

Since there are approximately 10 stations in a predictor network, with about 13 observational elements at each station, the subjective selection of predictors involves a choice of four observational elements out of a possible 130, or the selection of one permutation of four elements out of 272,000,000 possible permutations.

Predictors and categories of predictors were selected subjectively through the use of physical and synoptic reasoning, supported by considerable experimentation. It is not practical to present here a total description of the final selection of predictors. However, one of the many experiments conducted is described below as an example of how the basic output of the grouping programs was used to check the validity of the predictor selection—and to point up some of the problems involved.

Table 3-2 is a crude attempt at combining the concepts of synoptic typing and advection of the predictand element. It is expected that northerly winds at IDL will describe a generally southward flow over the area and should emphasize persistence of category 5 at IDL or improvement of lower categories. Values of the north-south component of wind (VWC) at IDL between N2.5 and S2.5 with low values of ceiling (CIG) at NEL should imply westward flow and emphasize persistence of lower categories of CIG-IDL or deterioration indexed by CIG-NEL. Similarly, values between N2.5 and S2.5 at IDL with moderate to high values of CIG-NEL will imply an eastward flow and emphasize CIG-TEB as an index of CIG-IDL. There are, of course, a number of weaknesses in this reasoning—for example, the assumption of an eastward or westward flow with low values of VWC-IDL. Obviously, there will be occasions when low values of VWC-IDL reflect light winds, with the CIG-NEL and CIG-TEB reflecting radiation effect.

It is of some interest to consider the tabular output of the grouping program first from the standpoint of the information contained and as a check of the validity of the basic reasoning underlying the choice of predictors.

From the dependent data (4000 observations), Table 3-3 is obtained for the use of persistence alone as a predictor for a 2-hr forecast. Table 3-3 exhibits three basic facts quite well known to all practicing forecasters:

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TABLE 3-2
PREDICTORS CHOSEN FOR 2-hr CEILING FORECAST AT IDLEWILD

Predictors		Grouping									
in order of selection	1	2	3	ļţ	5	6	7				
CIG-IDL	<200	< 500	<1000	< 3000	< Un l	Un I	-				
VWC-1DL	> N1 5.5	>N10.5	>N2.5	< \$2.5	< S10.5	< \$15.5	> S15				
CIG-NEL	< 200	< 500	<1000	< 5000	< Un I	Un I	-				
CIG-TEB	< 200	< 500	<1000	< 5000	< Un I	UnI	-				

TABLE 3-3
SINGLE PREDICTOR: PERSISTENCE

		Ob	served	category	* 2 hr 1	ater	T-t-1
		1	2	3	Ħ	5	Total
*	1	7	14	2	8	6	37
category*	2	17	57	20	18	18	130
cste	3	2	33	111	53	36	235
Initial	4	0	5	63	244	145	<sup>1</sup> 457
Init	5	4	11	22	123	1467	1627
	6	1	Ц	5	17	1487	1514
	[otel	31	124	223	463	3159	4000

<sup>\*</sup>The category limits are given in Table 3-2.

- (a) For all categories except category 1 (CIG < 200 ft), the probability of persistence exceeds the probability of any other single category.
- (b) The probability of improvement is in general considerably better than the probability of deterioration.
- (c) The probability of CIG < 3000 ft with an initially unlimited ceiling is extremely low.

More specifically, the dependent data result in the probabilities in Table 3-4. The use of the V-wind component at IDL at time zero as a predictor of ceiling at +2 hr yields Table 3-5.

If we consider three possible wind categories,

- (a) N = (N>2),
- (b)  $C = (\leq N2 \text{ to } \leq S2)$ , and
- (c) S = (>S2),

the relative frequencies at +2 nr are given in Table 3-6. It is interesting to note the high relative frequency of category-4 ceiling (i.e., 1000 ft < CIG < 3000 ft) with northerly wind. This probably reflects the tendency for cumulus and stratocumulus to base around 2500 ft in unstable southward flow, which is so familiar to the practicing forecaster. Also strongly evident is the obscuring effect of the catch-all category 5. The climatic expectancy of category-5 ceiling is about 0.82. Although there appears to be considerable information in VWC-IDL as a single predictor, its utility is very limited.

In the initial proposal above, it is suggested that category-4 VWC (i.e., N2.5 > VWC < S2.5) would be assumed to imply an easterly flow if CIG-NEL was low. Further, it is proposed that in this event the tendency at IDL would be toward deterioration indexed by CIG-NEL. Extraction of data from the table formed of the three variables CIG-IDL, VWC-IDL, and CIG-NEL yields Table 3-7.

It appears therefore that the proposed assumption is essentially valid. However, we must first question the value of the VWC predictor in this relationship and check the relative frequency distribution when the two CIG values are used alone. Extraction of data from the two-variable table yields Table 3-8. Comparison of Tables 3-7 and 3-8 row for row appears to support the initial proposal.

If now the attempt is made to use the four-variable table to test the validity of the initial assumptions more completely, the scarcity of data at once defeats the attempt. When the available data are squeezed to form the basis of a tentative conclusion, the scarcity of data prohibits even this. Table 3-9 exemplifies the futility of such an attempt. It is therefore hardly surprising that the use of these predictors failed to yield satisfactory results.

TABLE 3-4
PROBABILITIES FOR IDLEWILD 2-hr CEILINGS

Initial category	Probability of deterioration	Probability of persistence	Probability of improvement
1	-	0.19	0.81
2	0.13	0.44	0.43
3	0.15	0.47	0.38
14	0.15	0.53	0.32
5	0.10	0.90	-
6	0.02	0.98	-

TABLE 3-5 SINGLE PREDICTOR: VWC

		Observed CIG category 2 hr later					Total
		1	2	3	4	5	1,0181
Initial CIG category	1; > N15	0	0	10	30	103	143
	2; > N10	1	14	37	69	220	331
	3; > N2	2	30	62	135	784	1013
	·4; < N2, < S2	12	31	35	86	558	722
	5; > 52	10	35	53	97	1079	1274
	6; > S10	4	12	18	24	305	363
	7; > S15	2	12	8	22	110	154
Total		31	124	223	463	3159	400C

TABLE 3-6
SINGLE-PREDICTOR (VWC) PROBABILITIES

		Observed category 2 hr later					7.4.4	
		1	2	3	14	5	Total	
_ <u>}</u>	N	0.00	0.023	0.074	0.158	0.743	1477	
Initial	С	0.017	0.043	0.048	0.119	0.772	722	
C - C	S	0.009	0.027	0.044	0.080	0.834	1 791	

TABLE 3-7
THREE-PREDICTOR PROBABILITY TABLE

In	Initial category			Observed category at IDL 2 hr later				
CIG-IDL	VWC-1DL	CIG-NEL	1	2	3	4	5	Total
7		≤3	0	0.21	0.48	0.28	0.03	29
)	С	> 3	0	0-00	0.33	0.25	0.42	12
),		≤կ	0	0.00	0.14	0.58	0.28	50
4 C	> 4	0	0.00	0.10	0.38	0.52	21	

TABLE 3-C
TWO-PREDICTOR PROBABILITY TABLE

Initial category				ved cated		_	
CIG-IDL	CIG-NEL	1	2	ż	Ų	5	Total
	≤3	0.01	0.10	0.53	0.25	0.10	155
3	> 3	0.00	0.10	0.41	0.20	0.26	70
1.	≤4	0.00	0.01	0.16	0.59	0.25	349
4	> 4	0.00	0.00	0.06	0.35	o.58	108

TABLE 3-9
FOUR-PREDICTOR CONTINGENCY TABLE
GIVEN N2.5 > VWC.IDL < S2.5

	Initial value			CIG-IDL 2 hr later					
CIG-IDI	CIG-NEL	CIG-TEB	i	2	3	4	5	Total	
	1	3-6	1	βţ	1	n	n	6	
2	3-6	2	1	0	1	0	0	2	
7	2-1	4-6	0	1	2	0	0	3	
,	4-6	2-1	0	0	0	1	1	2	

# 3.3 Lund Technique

The Lund technique is described in an article by Lund [8]. Because of the limited number of previous applications, some experimentation was done as part of the evaluation. The dependent sample of 10 years was separated into two parts. The first part was used to develop the technique, and forecasts were made on the second part.

## It was found that:

- (a) Some meteorological elements (pressure for example) were never selected by the technique as a predictor of ceiling and visibility. Therefore, these elements were not considered as possible predictors in the evaluation.
- (b) The  $\chi^2$ -criterion did not halt the selection of predictors soon enough. Therefore, it was decided to select the first five predictors for each predictand.
- (c) The equations and computation methods in Lund's article [8] were not the most efficient for machine computation. So the form of the equations was changed to facilitate computation.

# 3.4 Multiple-discriminant Analysis

## 3.4.1 Metric for the Discriminant Space

Defining the metric is crucial in the Fix-Hodges nonparametric procedure for estimating group probabilities by distance-neighborhood [10]. Over the past year, a great deal of effort has been directed toward experimenting with various metrics. The one presently employed (giving each discriminant function a variance equal to its corresponding root) has proven to be the best when judged on the basis of P-score and hits.

## 3.4.2 Neighborhood Size

Group probabilities are estimated by the Fix-Hodges procedure of distance-neighborhood [10]. The question arises as to how large a neighborhood should be. After much experimentation, it was decided that validity and sharpness of the probabilities were best served by requiring a neighborhood to be large enough to include half the number of observations in the least frequented group, but not less than 25 in order to sefford stability.

## 3.4.3 Test > the Roots

The contribution of each discriminant function to the separation of the predictand groups is reflected in the corresponding roots. In theory, the significance of each root can be ascertained, provided that the group distributions are multivariate-normal with equal dispersions. In practically all applications of MDA made to date, these assumptions cannot be satisfied. Much effort has been spent in trying to decide the effectiveness of the Bartlett test procedure [10] for determining the significance of the roots. The present state of affairs is that all possible discriminant functions are always used. The controlling factor rests in the construction of the metric since each discriminant function is given a variance equal to its root. Thus, a discriminant function with a small root has less effect on deciding which are the close-neighbor observations.

## 3.4.4 Centroid Method

The classical MDA procedure for making a categorical prediction is to choose the group whose mean in discriminant space is nearest the point representing the current observation of antecedent conditions. This is termed the nearest-centroid method. It is the appropriate procedure if the group distributions are multivariate-normal with equal dispersions. It is also appropriate under slightly more general conditions. An effort was made to apply the nearest-centroid method to problems in ceiling prediction even though they were known not to be distributed normally. The results proved to be somewhat inconsistent with the probability estimates obtained from distance-neighborhood, and the procedure was subsequently abandoned.

## 3.4.5 Weight Function Applied to Neighbors

When a neighborhood is constructed about an observed point in discriminant space, it seems reasonable to give more weight to the closer observations than to the more distant observations. This seems especially important should the neighborhood be very large. An attempt was made to introduce an exponential weight function, exp (-aD<sup>2</sup>), to have the effect of damping the more distant points (D being the distance and a being a constant to be determined). Professor A. T. James, by verbal communication in consultation on this problem, theorized the value of a to be 16 for the particular problem used in the experiment. The experimental results confirmed that this was, in fact, the best of the many values tried. The improvement was gratifying; however, more work needs to be done before it can become part of the general MDA program.

## 3.4.6 Equal Group Sizes

A sample was constructed which gave each group an equal representation. This was performed by discarding observations in the ordinarily more frequented groups. Selection was performed, using this sample. Parameter estimates (means, variances, roots, and vectors) were estimated on a sample in which the group frequencies were as they occur naturally. Results on independent data were inferior to those where selection was performed without equal group sizes. This was contrary to previous experiments of this type [10]. Perhaps the numerous innovations introduced since the initial experiments caused this apparent inconsistency.

## 3.4.7 Time Lags

A very limited experiment was performed to determine the contribution made by including observations prior to those at forecast time. The results were not encouraging. A more comprehensive effort is anticipated, which will deal explicitly with time changes in the predictors.

## 3.4.8 Test on the Selection Criterion

Although a test procedure has been laid down for judging the significance of a newly selected predictor [10], much effort has gone into confirming or denying its validity. At present, it can at least be said to be providing satisfactory guidelines on when to discontinue selecting variables. There is, however, a difficulty in prescribing the precise number of degrees of freedom available in any given problem because of serial correlation.

## 3.4.9 Factorial Procedure for Objectively Dummying Predictors

Each raw predictor was initially divided into two classes. A dummy variable was constructed to denote the occurrence or nonoccurrence of each class. The selection of predictors was performed on the type of dummy variables generated. For all those selected, a more detailed division of classes was employed. This routine is akin to generating more levels on each factor as in factorial experiments in the analysis of variance. The routine is iterative—select and then construct more levels. One additional consideration is made: interaction terms are generated from those dummies selected by constructing all intersections, unions, and complements. To date, only one experiment has been performed according to this procedure. More work is expected to be done.

## 3.4.10 Boolean Terms

When each available predictor is in dummy-variable form, the way is open to construct an unlimited number of "and," "or," and "not" variables. A program giving us this flexibility is now available. Tests performed thus far are quite encouraging; however, much more work needs to be done on this subject.

## 3.4.11 Dummy-variable and Continuous-variable MDA Programs

A discussion is given by Enger [6] of the construction and practical advantages of dummy variables. We have written an MDA program to handle dummy variables optimally. There has also been written an MDA program to handle continuous variables. Specifications of these two available programs are given in Table 3-10.

## 3.4.12 Use of Independent Observations to Estimate Probabilities

Given a sample of observations from which to select predictors and estimate parameters (means, variances, roots, and vectors), it seemed reasonable to introduce a new sample from which probability estimates could be made. The assumption was that the distribution of points in discriminant space would thereby be unbiased. An

TABLE 3-10
SPECIFICATIONS OF TWO AVAILABLE PROGRAMS

Program	Max. no. of groups	Max. no. of data sample (dep. and indep.)	Max. no. of possible predictors	Mode of estimating probabilities	Selection- test criterion	Loss-function classification option?
MDA dummy variable	30	10,008	500	Fix-Hodges romparametric	tr W <sup>-1</sup> B	Yes
MDA continuous variabie	30	4,000	Unlimited	Fix-Hodges nonparametric	tr W <sup>-1</sup> B or Wilk's \	No

experiment failed to justify the need for performing this two-stage operation. The results, on a new independent sample, were better when the group probabilities were estimated from the initial 'biased' sample. Since this might be attributable to the necessary depletion of sample observations, it seems advisable that more work be done on this matter.

# 3.4.13 Preliminary Operational Tests of MDA Forecast Tables

A test of the usefulness of MDA forecast tables was conducted under routine operational conditions between June 27 and July 27, 1962. During this time, forecasts of ceiling and visibility for 2, 3, 4, and 6 hr were made routinely for Westover AFB (CEF), using the facilities of the TRC Forecast Section and the MDA forecast tables for CEF. A complete description of this test and the results obtained were presented at the Fourth Conference on Applied Meteorology [9]. It was found that a set of predictions could be prepared routinely in a matter of a few minutes. In addition, it was subjectively decided that the MDA probabilities contained an appreciable amount of information over and above that of persistence. This appraisal was confirmed when a comparative evaluation of the MDA predictions versus persistence was performed [7].

MDA forecast tables were also provided to forecasters at Weather Bureau airport stations in Atlantic City and Washington, D.C., in August.

A sample MDA forecast table with three predictors is shown as Table 3-11. A forecast is made by entering the table with the observed predictor combination and reading off the five probabilities. In the test and evaluation, 48 such tables were computed.\* The number of zero-one variables selected varied from seven to 29, and the number of rows in the tables ranged from 80 to 2200.

## 3.4.14 Nonparametric Binary Selection

Miller has expressed great hope [2] for a method called <u>nonparametric binary</u> <u>selection</u>. Although the arguments presented for the need for such a procedure still apply, he found much more research work was required before it could be engineered into a useable form. It still remains a method that deserves serious consideration in the future.

## 3.4.15 Regression Within Groups

Multiple-regression techniques have been expected to perform the statistical prediction of continuous variables. However, knowledge gained in the use of MDA on discrete variables suggested that methods more powerful than regression might be devised. These fall into two categories: canonical correlation and a combination of regression and discriminant analysis. In a pilot study, it was found that by grouping the corriginous variable temperature and subjecting it to MDA, we were able to estimate the probability that a sub-

<sup>\*</sup>Too lengthy for inclusion here, copies are available from The Travelers Research Center, Inc., 650 Main St., Hartford, Conn.

TABLE 3-11
MDA FORECAST TABLE WITH THREE PREDICTORS

Predictor combination		Forecast probability of predictand category					
Com	71110		1	2	3	4	5
0	0	0	0.000	0.000	0.204	0.463	0.333
0	0	1	0.200	0.400	0.267	•0.044	0.089
С	1	0	0.543	0.152	0.152	0.087	0.065
С	1	1	0.000	0.089	0.156	0.111	0.644
1	0	0	0.178	0.289	0.333	0.111	0.089
1	0	1	0.044	0.111	0.178	0.267	0.400
1	1	С	0.000	0.000	0.023	c.068	0.909
1	1	1	0.000	0.111	0.111	0.178	0.600

sequent temperature would fall in any particular group. By getting the sum of the products of the temperature estimated in each group and the corresponding probability of group membership, a single temperature estimate was made having a smaller rms error on independent data than that obtainable by straight multiple regression. Follow-up studies were not as successful—probably because a number of modifications were introduced.

## 3.5 Lewis Technique

The steps involved in the Lewis technique are:

- (a) Up to 26 possible predictors are categorized into groups according to prespecified class limits.
  - (b) Up to 10 tables, such as Table 3-12, are computed.
- (c) Table 3-12 is called a two-way table because there are two predictors. The maximum number of two-way tables is six.
- (d) A three-way table is one whose general element is  $\overline{Y}_{ijk}$ , obtained by finding all cases in the dependent sample for which predictor D is in class i, predictor E is in class j, and predictor F is in class k. For these cases, the mean of the predictand is obtained. A maximum of two three-way tables is computed.
- (e) A <u>four-way</u> table is defined by extension of the explanation just above. The maximum number is also two.
- (f) A variable  $X_1$  is generated as follows: Table 3-12 was obtained by using predictor A and predictor B. The first A-value and the first B-value in the dependent sample of data are used to locate a box in Table 3-12. The first value of  $X_1$  is set equal to the  $\overline{Y}$  of this box. This process is repeated for the entire dependent sample.
- (g) A variable  $X_2$  is generated in a similar fashion by using the second table with its predictors.
- (h) This process is repeated for all tables. Since a maximum of 10 tables was made (six two-way, two three-way, and two four-way), there will be a maximum of 10 X-variables.
- (i) A multiple-screening regression is done between the predictand and the X-variables just generated. This will result in a regression equation

$$\hat{Y} = B_0 + B_1 X^{(1)} + B_2 X^{(2)} + \cdots,$$
 (3-1)

where the superscripts refer to the X-values selected by the screening. In general, not all X-variables will be selected. The tables used to generate the selected X-variables are retained, but no other tables are retained.

(j) The regression equation is used to compute residuals,  $Y - \overline{Y}$ , for all dependent-sample cases.

TABLE 3-12 EXAMPLE OF TABLE USED IN LEWIS TECHNIQUE\*

Predictor	Predictor B class					
A class	1	2	3	4		
1	Ÿ	Ÿ	Ÿ	₹		
	11	12	13	14		
2	<del>7</del>	Ÿ	₹	₹		
	21	22	23	24		
3	Ÿ	Ÿ	₹	Ÿ		
	31	32	33	34		

\*The general entry  $\overline{Y}_{ij}$  is obtained by finding all cases in the dependent sample of data when predictor A is in class i and predictor B is in class j. For these cases, the mean of the predictand is obtained.

(k) Steps (b) through (j) are repeated, with the residuals being used in place of the predictand values. This results in a second set of tables' being retained and a second regression equation

$$\hat{R} = C_0 + C_1 X^{(a)} + C_2 X^{(b)} + \cdots, \qquad (3-2)$$

where the superscripts refer to the X-values selected by this screening.

- (1) Steps (b) through (k) are repeated until the screening regression indicates no further reduction of variance or until a prespecified number of tables has been selected.
- (m) The tables retained in the steps above are used to make predictions on an independent sample of data. A prediction is made by entering the retained tables to read off values of  $X^{(1)}$ ,  $X^{(2)}$ , ...,  $X^{(a)}$ ,  $X^{(b)}$ , ..., and any other set of predictors that are obtained by further repetitions of steps (b) through (1). The X-values thus obtained are used in the regression equations to compute  $\hat{Y}$ ,  $\hat{R}$ , etc. These may be added to obtain the final prediction. It is also possible to take into consideration the initial value of the predictand when making forecasts.

# 4.0 SUBJECTIVE FORECASTS USED IN TESTS

## 4.1 Types of Forecasts

Table 4-1 lists the terminals, types of forecasts and dates for which forecasts were available. Details of contents of FT1s and FT2s can be found in the <u>Weather Bureau Manual</u>, vol. III, Chap. B-21; contents of TAFORs and PLATFSs can be found in <u>Air Weather Service Manual 105-24</u>, Aeronautical Meteorological Codes; contents of SAGE forecasts can be found in <u>NORAD Manual 55-3</u>, Hq. North American Air Defense Command, Ent AFB, 1 Feb. 1961.

Subjective probability forecasts are not routinely prepared in the existing weather system. The 433L Forecast Evaluation Working Group solicited and received the help of the United States Weather Bureau in acquiring this kind of forecast. Weather Bureau forecasters at Idlewild International Airport and Washington National Airport participated in this experiment during the evaluation year. They were requested to prepare 3-, 5-, and 7-hr forecasts of categories of ceiling and visibility four times daily.

## 4.2 Parameters Decoded

All parameters normally included in the forecasts were decoded at The Travelers Research Center. The only exceptions were the FT1s for Atlantic City. These were received in a decoded form in which only ceiling and visibility had been decoded. The decodes of all parameters were available on punched cards, but for the evaluation, ceiling and visibility forecasts were available on magnetic tape. Details of the format are available. Decoded forecasts of ceiling and visibility were placed on three tapes. On the first tape are forecasts for Washington National Airport (FT1), Atlantic City (FT1), Idlewild International Airport (FT1), Westover AFB (TAFOR), Offutt AFB (TAFOR), McGuire AFB (TAFOR), and Randolph AFB (PLATIS). The second tape contains forecasts for McGuire AFB (SAGE). The third tape contains the special subjective probability forecasts for Idlewild and Washington National Airports.

## 4.3 Decoding Procedures

Ground rules for decoding of all parameters that were decoded are available from The Travelers Research Center. The terminal-forecast evaluation included only forecasts of ceiling and visibility; consequently only the ground rules that apply to these parameters are listed below.

- (a) Whenever possible, applicable, or necessary, forecasts were linearly interpolated.
  - (b) If two ceiling layers were forecast, the lower was used.
- (c) Whenever multiple cloud layers were forecast, it was assumed that the amount forecast for each layer was the amount expected at each level and not a summation of clouds up to respective levels.

TABLE 4-1
TERMINALS AND TYPES OF SUBJECTIVE FORECASTS

Terminal	Type of fcst	Dates available
Atlantic City Airport	FT1	1 Jul 60 - 30 Sep 61
Idlewild International Airport	FT2 special prob fcsts	1 Oct 60 - 30 Sep 61; 1 Jul 60 - 30 Jun 61; 1 Aug 61 - 30 Sep 61
McGuire AFB	TAFOR	1 Oct 60 - 31 Mar 61; 21 May 61 - Sep 61
	SAGE	1 Jun 60 - Sep 61
Offutt AFB	TAFOR	1 Jul 60 - 30 Sep 61
Randolph AFB	PLATFS	1 Jul 60 - 30 Sep 61
Washington National Airport	FT2 special prob fcsts	1 Jul 60 - 30 Sep 61 14 Sep 60 - 30 Sep 61
Westover AFB	TAFOR	1 Jul 60 - 31 Oct 61

- (d) Ceiling was defined as it appears in the <u>Manual of Surface Observations (wBAN)</u>, Circular N, ¶1402 and Table 1-11.
- (e) All visibility forecases more than 7 mi were normalized at 7.5 mi; i.e., they were given the value 62 as found in code 84 of the Hydrographic Office publication no. 206, dated 1958.
- (f) When the ceiling was forecast to be caused by a surface-based obscuration, the ceiling height was defined as the vertical visibility.
- (g) Interpolation between a ceiling resulting from a surface-based obscuration and a subsequent ceiling resulting from a cloud layer was an interpolation between vertical visibility in the obscuring phenomenon and the subsequent cloud height.
- (1) When it could be reasonably assumed that fog had lifted to form the subsequent cloud layer, a linear interpolation between the end-point values of the time interval was used.
- (2) When it was more reasonable to assume dissipation of the obscuring phenomenon, the ceiling represented by the vertical visibility was used to characterize the time interval with a single-step change at the end of the time interval.
- (h) Ceiling and visibility changes associated with FROPA passage were assumed to be instantaneous.
- (i) When a PLATFS forecast had thin broken or thin overcast becoming broken or overcast at the forecast time, the final condition was assumed to have occurred instantaneously.
  - (j) Forecasts of temporary, occasional, and intermittent conditions were omitted.

# 5.0 DESCRIPTION OF FINAL DATA ON IBM TAPE

Standard hourly airways surface observations covering the 10 years from 1 Jan. 1949 through 31 Dec. 1958 were collected and processed as part of the evaluation. The end product is a set of seven IBM:7090 magnetic tapes, one for each of the station networks listed in Table 2-2 of the main body of this report [7]. Because these data may be of use in other work, a brief description of the tapes is given below.

## 5.1 Amount of Data

There are 10 or 11 stations in a network, and, generally, 16 meteorological elements were used at each station. The hour of the day and the day of the year were included as variables. Thus, for a 19-station network, there are 162 variables.

There are 87,672 hr in the 10 years from 1949 through 1958 and, therefore, more than 14,000,000 (162  $\times$  87,672) data values in one network. This is too many to use efficiently; besides, not all hours are needed because of the serial correlation present in meteorological variables. The amount of data was reduced by a three-stage process:

- (a) Any variable not observed for a substantial portion of the 87,672 hr was eliminated.
- (b) Those hours were eliminated for which any one of the variables was missing or failed to pass a gross-error check.
- (c) A random selection of the remaining hours was made to select from 8,000 to 10,000 hr.

Two records are on tape for each variable: an identification record consisting of a five-word description and a data record of from 8,000 to 10,000 values of one element at one station.

## 5.2 Variables on Magnetic Tape

From the information appearing on WBAN-10, it was found convenient to use the 16 variables following in the form indicated below.

## 5.2.1 Ceiling (CIG)

Ceiling values are stratified into 19 classes as shown in Table 5-1.

## 5.2.2 Visibility (VIS)

Visibility values are stratified into 19 classes as shown in Table 5-2.

TABLE 5-1 CEILING CLASSES

TABLE 5-2 VISIBILITY CLASSES

. Täpe value	Ceiling, ft
1	0 = CIG
. 2	100 = CIG
3	200 = CIG
4	300 = CIG :
·. 5	400 = CIG
6 .	500 = CIG
7	600 = CIG
8	700 = CIG
9	800 = CIG
10	900 = CIG
11	1,000 ≤ CIG < 1,500
12	1,500 ≤ CIG < 2,000
13	2,000 ≤ CIG < 2,500
14.	2,500 ≤ CIG < 3,000
15	3,000 ≤ CIG < 5,000
16	5,000 ≤ CIG < 10,000
17	10,000 ≤ CIG < 20,000
18	20,000 ≤ CIG < Uni
19-	Unit: = CIG

Tape value	Visibility, mi
1	0 ≤ VIS < 1/16·
. 2	1/16 ≤ VIS < 1/8
3	1/8 ≤ ¥)S < 1/4
4	1/4 ≤ VIS < 1/2
<b>5</b>	1/2 ≤ VIS < 3/4 ·
5	3/4 ≤ VIS < 1
7	1 ≤ VIS < 1-1/2
8	1-1/2 ≤ VIS < 2
9	2 ≤ VIS < 3
10	3 ≤ VIS < 4
11-	4 ≤ VIS < 5
12	5 ≤ VIS < 6
13	6 ≤ VIS < 7
14	7 ≤ VIS < 8
15	8 ≤ VIS < 9
16	9 ≤ VIS<10
17	10 ≤ VIS<11 .
18	11 ≤ VIS<15
19	15 ≤ VIS

# 5.2.3 Two Wind Components (UWC, VWC)

UWC is the east-west component of the wind and is given on tape in knots to the nearest tenth; a positive value indicates a westerly component.

VWC is the north-south component of the wind and is given on tape in knots to the nearest tenth; a positive value indicates a southerly component.

## 5.2.4 Wind Velocity (WND)

The wind velocity is on tape in the form Dfff, where fff is the speed in knots and D is the direction coded as shown in Table 5-3.

## 5.2.5 Dry-bulb and Dew-point Temperatures (DBT, DPT)

Dry-bulb and dew-point temperatures are in degrees Fahrenheit to the nearest degree.

## 5.2.6 Relative Humidity (RLH)

Relative humidity is in percent.

## 5.2.7 Sea-level and Station Pressures (SLP, STP)

Sea level pressure is in millibars to the nearest tenth.

Station pressure is in inches to the nearest hundredth.

# 5.2.8 Sky Condition Lower (SCL)

This is the amount of sky covered by the lowest cloud layer and it is coded as shown in Table 5-4.

## 5.2.9 Total Cloud Amount (TCA)

Total cloud amount is in eleven classes, as shown in Table 5-5.

## 5.2.10 Four Weather Variables

The weather was transformed to four variables: three binary variables and one variable made with prime numbers. A binary variable takes on the value 1 when a weather condition exists; otherwise it is 0. The three binary variables are precipitation, restrictions to visibility, and stability as observed from weather at the ground.

The weather conditions for generating the three binary variables are shown in Table 5-6. The fourth weather variable is a description of the weather as given in Table 5-7. If more than one weather condition occurred at a given hour, the product of the corresponding prime numbers is used to describe the weather. Prime numbers have the advantage that the product of primes is a unique value decomposable into the values used to generate it.

TABLE 5-3
WIND-DIRECTION CODES

Code value	Direction
0	Calm
1	NNE-ENE
2	Ε
3	ESE-SSE
4	S
5	SSW-WSW
6	W
7	WNW-NNW
8	N

TABLE 5-4
SKY-CONDITION-LOWER CLASSES

Tape value	Condition
1	Clear
2	Thin scattered or partial obscuration
3	Scattered or thick scattered
4	Thin broken
- 5	Broken or thick broken
6	Thin overcast
7	Overcast or thick overcast
8	Obscuration

TABLE 5-5 CLOUD-AMOUNT CLASSES

Tape value	Cloud amount, tenths of sky covered
1	< 1
2	1
3	2
4	3
5	4
6	5
7	6
8	7
9	8
10	9
11	> 9

TABLE 5-6
WEATHER CONDITIONS FOR GENERATING BINARY VARIABLES

Class	Elements							
Precipitation	R-, R, R+, RW-, RQ-, RW, RQ, RW+, RQ+, L-, ZL-, L, ZL, S-, SP-, IC-, SG-, S, SP, IC, SG, S+, SP+, IC+, SG+, SW-, SQ-, SW, SQ, SW+, SQ+, ZR-, E-, EW-, ZR, E, EW, ZR+, E+, EW+, A-, AP-, A, AP, A+, AP+							
Restriction to visibility	R+, RW+, RQ+, S, SP, IC, SG, S+, SP+, IC+, SG+, SW, SQ, SW+, SQ+, F, IF, K, H, KH, D							
Measure of stability	RW-, RQ-, RW, RQ, SW-, SQ-, SW, SQ, SW+, SQ+, TQ, T+, Q+, TOR, Q-, A-, AP-, A, AP, A+, AP+, BD, BN, BS, BY							

TABLE 5-7
WEATHER-DESCRIPTION CLASSES

	Tape value	Weather event
	1	None
	2	R-
ı	3	R
	5	R <del>i</del>
	7	RW-, RQ-,
	11	RW, RQ
	13	RWF, RQF
	17	L-, ZL-
	19	L, ZL
	23	L+, ZL+
	29	S-, SP-, IC-, SG-
	31	S, SP, IC, SG
	37	S+, SP+, 1C+, SG+
	41	SW-, SQ-
	43	SW; SQ
	47	SW+, SQ+
	53	ΤQ
	59	T+, Q+, TOR
	61	Q-
	67	ZR-, E-, EW-
	71	ZR, E, EW
	73	ZR+, E+, EW+
	79	A-, AP-
	83	A, AP
	89	A+, AP+
	97	F, IF
	101	<b>Ģ</b> F
	103	80, 5N, BS, BY
	107	К, Н, КН, О

# 5.2.11 Time of Day (TOD)

Time of day is an integer from .00 to 23 giving the hour of observation.

# 5.2.12 Day of Year (DOY)

Day of year is an integer from 1 through 365 giving the day of observation. The year is not given.

# 6.0 SOME RESTRICTIONS ON THE SUBJECTIVE CHOICE OF PREDICTORS

A number of variables were excluded from consideration in the statistical prediction techniques. The reasons for these restrictions are given below.

## 6.1 Restrictions Due to Use of Hourly Airways Observations Only

The design of the Common Aviation Weather System requires that short-period terminal forecasts be produced operationally every hour. The only data readily available every hour are the airways observations, so predictors were restricted to this set. Thus, no upper-air observational data were used in the development of any of the statistical forecast methods. In addition, some variables observed from the surface were excluded, e.g., radar and snow cover.

# 6.2 Restrictions Due to Requirement of Long Historical Records

A reasonably long historical series of readily available data is required for the development of the forecast techniques used in this test and evaluation. We decided arbitrarily that 10 years was a reasonable period and, therefore, we restricted the variables to those observed for the 10 years (1949-1958) and available from Asheville on magnetic tape. Because the statistical techniques are being developed with a view toward placing one or more of them into operation, an additional restriction was that the stations chosen still be in operation and expected to remain in operation for the foreseeable future.

In the formation of the network-data samples [7, Sec. 2.4.1], an error in any one of the variables at any station disqualifies all variables for that hour. Therefore, observational elements containing a high percentage of errors were excluded in order to form data samples of acceptable size. It was not feasible economically to go back and attempt to fill in or correct missing or erroneous observations. Examples of variables excluded are amount, type, and height of lowest and second cloud layers at various stations.

## 6.3 Restrictions Due to Use of Observed Variables Only

At the outset of this work, a decision was made to restrict the predictors to observed variables. Thus, no variables generated by taking time or space derivatives were permitted, nor were combined terms such as advection of a variable by some function of the wind. Several reasons prompted this decision. First, in some previous work, we found that when simple variables and "exotic" variables were presented together to a screening technique, only the simple variables were selected, or, if exotic variables were selected, a replacement by simple variables did as well. Second, although it is true that some predictive information will be lost if an exotic variable is a good predictor, it is also true that it is quite difficult to choose subjectively the proper exotic variables because this requires a subjective weighting of variables. That is, a pressure-gradient term is approximated by a simple pressure difference,  $p_1 - p_2$ ; this gives weights of 1 and -1 to the two pressure variables, but we feel that it is better to leave the data free to apply the weights. Third, there are errors of observation in most variables, and exotic variables tend to have larger errors. Fourth, to determine whether

exotic variables add predictive information, it is necessary to know how good the simple variables are by themselves. We intend to try to improve the multiple-discriminant analysis (MDA) method by introducting exotic variables in addition to the simple variables selected by the technique. Fifth, using the principle of Occam's razor, other things being equal, a simpler solution to a problem is preferred to a more complicated solution.

## 6.4 Restrictions Due to Number of Possible Predictors

IBM 7090 programs were written to compute the required forecast equations and tables for the various statistical forecast techniques. The grouping plogram restricted the number of predictors to four. (The reasons for this restriction and its effects are presented in Section 3.3.) Because of cost, the Lund technique was restricted to 50 possible predictors, and the MDA technique was restricted to 500 binary predictors. On the average, there are five binary variables for each raw variable, so MDA was restricted to some 100 possible raw predictors. The possible predictors for both the Lund and MDA techniques are presented in Appendix B.

This limitation on the maximum number of possible predictors to 50 or 100 was met in two ways. First, the network of stations was restricted to a maximum of 11 stations. We chose the stations by estimating the distance that a meteorological element could be advected. Thus, for 2-7-hr ceiling and visibility prediction at Idlewild, the outer ring of stations was less than 200 mi away. We now feel that this is not far enough because some of the variables selected by the screening technique for 2-hr prediction were from this outer ring, which is beyond the 2-hr advection distance. This implies that advection alone should not be the only consideration in choice of stations.

A second criterion for restricting the total number of possible predictors was experience gained in some preliminary studies. We found, for example, that pressure and temperature were almost never selected by the screening techniques. Therefore, these variables were eliminated except possibly at the predictand station itself. On the other hand, variables such as weather and cloud information were selected by the screening techniques in the preliminary studies, and, therefore, these are included as possible predictors at almost all stations.

## 7.0 REFERENCES

The following are referred to in the foregoing sections and in the appendices:

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APPENDIX B
PREDICTOR VARIABLES

## APPENDIX B. PREDICTOR VARIABLES

## B.1 Introduction

The statistical forecast techniques being evaluated are grouped into two types:

- (a) nonscreening techniques, which include persistence, expectancy of persistence, and grouping, and
- (b) screening techniques, which include Lund contingency and multiple-discriminant analysis.

In the nonscreening techniques, the predictor variables are chosen beforehand by the investigator. In the screening techniques, a relatively large set of predictors is presented to the technique and a small set is selected. The predictors in the large set are called <u>possible predictors</u>; those in the small set are called <u>selected</u> <u>predictors</u>.

This appendix lists all the predictors used by the techniques for preparing 2- through 7-hr forecasts of ceiling and visibility for the seven evaluation stations.

# B.2 Abbreviations Used in Tables

Tables B-1 through B-44 use the following abbreviations for meteorological elements.

CIG	Ceiling height
CLH	Height of lowest cloud layer
CTL	Cloud type of lowest cloud layer
DBT	Dry-bulb temperature
DIR	Wind direction to 16 points (0 = calm, 1 = NNE,, 9 = SSW,, $16 = N$ )
DOY	Day of year
DPT	Dew-point temperature
FNF	For occurrence

0	CA	Opaque cloud amount
P	NP	Precipitation occurrence
R	LH .	Relative humidity
80	CL	Sky condition lower
S	cu	Sky condition upper
S	LP ,	Sea-level pressure
81	NS	Stability classification (This term indicates the occurrence or nonoccurrence of weather events associated with instability, such as squalls, thunderstorms, etc.)
SI	PD	Wind speed
S'	rp	Station pressure
T	CA	Total cloud amount
T	OD	Time of day
U	WC	E-W wind (W is positive)
V	is .	Visibility
V	<b>W</b> C	N-S wind (S is positive)
W	EA	Weather (See Table B-23)
W	ND	Wind velocity

## B.3 Persistence

The only predictor needed for a persistence forecast is the present observation of the variable being predicted.

## B.4 Grouping

Grouping is a nonscreening technique. The predictors are chosen subjectively.

Any number of predictors can be chosen. Four predictors were chosen for each predictand, and each predictor was categorized into classes.

The predictors and the categorization limits are given in Tables B-1 through B-14. The number in any limit column is the asymptotic upper limit of that category and the exact lower limit of the next higher category. The lower limit of category 1 and the upper limit of the highest category are not given in the tables. However,

# TABLE B-1 PREDICTORS SELECTED FOR GROUPING TECHNIQUE FOR ACY CIG

#### (a) 3-kr forecas\*

2-4	der Sta Elem	Elem	Unit			Li	mits of cal	egosy			
Order			· v	1	2	3	- 4	5	6	7	8
1	ACY	CIG	ft	200	500	1900	3000	ા			
2	MIV	CIG	ñ	200	500	1900	3000	Unil			
3	WRI	Dir	16 pt	1	5	,	12				
4	PHL	CIG	R	200	590	1000	3000	Uni			

### (b) 5-hr forecast

Order	Sta El	Elem	Unit	Limits of category									
Order				1	2	3	4	5	6	7	8		
1	ACY	CIG	ft	200	500	1000	3000	Unit					
2	ACY	DSR	16 pt	1	5	,	12						
3	ACY	RLH	<b>%</b>	86	96								
4		100	hr	13			Ì						

Order		Sta El	Flem	Elem	Unit			Li	vits of cat	ctor).			
	0.2	2.02.		1	2	3	4	5	6	7	6		
:	ACY	CIG	ñ	200	5 <b>0</b> C	1000	3000	Uni					
2	ACY	DIR	16 pt	1	5	9	12						
3	YBZ	CiG	ft	200	590	1000	3000	Uni					
1	MDT	DIR	i€ pt	1	5	,	12						

TABLE B-2
PREDICTORS SELECTED FOR GROUPING TECHNIQUE FOR ACY VIS

Order	rder Sta	Sta	Sta	Elem	Unit	Limits of category								
01001		) <u></u>		1	2	3	4	5	6	7	8			
1	ACY	VIS	mi	0.6	1	2	3	15						
2	PHL	TCA	10ths	7	10									
3	MIV	DIR	16 pt	. 1	5	9	12							
4	WRI	DIR	16 pt	1	5	8	12							

## (b) 5-hr forecast

Order	Order Sta	Elem	Cnit	Limits of category									
Order		Liem		1	2	3	4	5	6	7	8		
1	ACY	VIS	mi	0.5	1	2	3	15		ļ.			
2	DCA	DIR	16 pt	1	5	9	12						
3	PHL	DIR	16 pt	l	5	,	12						
4	ACY	DIR	16 pt	1	5	9	12						

Order	Sta	Elem	Unit	Limits of category										
0.00.		Diem	J Chin	1	2	3	4	5	. 6	7	8			
1	ACY	VIS	mi	0.5	1	2	3	15						
2	DCA	DIR	16 pt	1	5	9	12							
3	PHL	DIR	16 pt	1	5	9	12							
4	ACY	DIR	16 pt	1	5	9	12							

TABLE B-3
PREDICTORS SELECTED FOR GROUPING TECHNIQUE FOR IDL CIG

Order	Sta	Elem	Unit	Limits of category									
Order	i,na	Liem	Cint	1	2	3	4	5	6	7	8		
1	IDL	CIG	ft	200	500	1000	3000	Unl					
2	NEL	RLH	%	86	96								
3	FCK	CIG	ft	200	500	1000	3000	Unl					
4	TEB	CIG	ñ	200	500	1000	3000	Unl					

(b) 3-hr forecast

Order	Sta	Elem	Unit			Li	mits of cat	egory			
Order	JAA	Liem	Chit	1	2	3	4	5	6	7	8
1	IDL	CIG	ft	200	500	1000	3000	Ual			
2	NEL	RLH	%	86	96						
3	FOK	CIG	ft	200	500	1000	3000	Unl			
4	TEB	CIG	ft	200	500	1500	3000	Unl			

(c) 5-hr forecast

Order	Sta	Elem	Unit			Lir	nits of cat	egory			
Order	-7,5	Licin	Çmi	ì	2	3	4	5	6	7	8
1	IDL	CIG	ft	200	500	1000	3000	Unl			
2	IDL	om	16 pt	1	5′	9	12				
3	IDL	DPT	*F	31	41	51	61	66			
4		YOU	days	136	201						

(d) 7-hr forecast

Order	Sta	Elem	Unit			Lir	nits of cat	egory			
(J) GF1		Lien	Cost	1	2	3	4	5	6	7	8
;	IDL	CIG	ft	200	500	1000	2000	Unl			
2	IDL	DIR	16 pt	1	5	9	12				
3	BOX	DIR	16 pt	1	5	9	12				
4		TOD	hr	15							

Order	Sta	Elem	Unit			Li	mits of cat	egory			
0.00.		Z.c.m	Cint	1	2	3	4	5	6	7	8
1	IDL	VIS	mi	0,5	1	2	3	15			
2	IDL	DPT	•F	31	41	51	61	66			
3	IDL	'DIR	16 pt	1	5	9	12				
4		DOY	days	136	201						

#### (b) 3-hr forecast

Order	Sta	Elem	Unit			Li	mits of cat	egory	<del></del>		
Orac.		Liein	Cint	1	2	3	4	5	6	7	8
1	IDL	VIS	mi	0.5	1	2	3	15			
2	BDL	DIR	16 pt	1	5	9	12				
3	NEL	RLH	%	86	96						
4	TEB	CIG	ft	200	500	1000	3000	Unl			

#### (c) 5-hr forecast

Order	Sta	Elem	Unit			Li	mits of cate	egory			
Order	3.0	2.0		1	2	3	4	5	G	7	6
1	IDL	VIS	mi	0.5	ì	2	3	15			
2	IDL	RLH	%	86	96						
3	BDL	DIR	16 pt	1	5	9	12.				
4		TOD	hr	4	16						

#### (d) 7-hr forecast

Order	Sta	- Fiem	Unit			Li	nits of cat	egory			
O, GC	-1-	270	Cint	1	2	3	4	5	6	7	6
1	IDL	VIS	mi	0,5	1	2	3	15			
2	NEL	CIG	ft	200	500	1000	3000	Unl			
3	BGM	CIG	ft	200	500	1000	3000	Unl			
÷		TOD	hr	15							

TABLE B-5
PREDICTORS SELECTED FOR GROUPING TECHNIQUE FOR WRI CIG

Order	Sta	Elem	Unii			Liı	nits of cat	egory			
0.00.		2,011	Citi	1	2	3	. 4	5	6	7	8
1	WRI	CIG	ft	200	500	1500	5000	Unl			
2	ACY	RLH	<b>%</b>	86	96						
3	NEL	CIG	ft	200	500	1500	5000	Unl			,
4	PHL	CIG	ft	200	500	1500	5000	Unl			

## (b) 4-hr forecast

Order	Sta	Elem	Unit			Li	nests of cat	egory			
Order		Fielu	Cin	1	2	3	4	5	6	7	8
1	WRI	CIG	ft	200	500	1500	5000	Uni	1		
2	PHL	TCA	10ths	7	10						
3	ACY	CIG	ſŧ	200	500	1500	5000	Uni			
4		TOD	hr	7	21						

Order	Sta	Elem	Unit			Li	nits of cat	egory			
Order	J. 2	Liem	Chit	1	2	Э	4	5	6	7	8
1	WRI	СЮ	ft	200	600	1500	5000	Unl			
2	ABE	DIR	16 pt	1	5	9	12				
3	PHL	RLH	%	86	96						
1		TOD	hr	5	17						

TABLE B-6
PREDICTORS SELECTED FOR GROUPING TECHNIQUE FOR WRI VIS

Order	Sta	Elem .	Unit			Li	nits of car	legory			
		·	cm;	1	2	3	• 4	5	6	7	8
1	WRI	VIS	mi	0.5	1	3	5	15			
2	WRI	DDR	16 pt	1	5	,	12				
3	NEL	VIS	mi	0.5	1	3	5	15			
4	ACY	VIS	mi	0.5	i	3	5	15			

## (b) 4-hr forecast

Order	Sta	ta Elem	Unit			Liı	mits of cat	egory			
0.4.		D.C.	C.II.	1	2	3	4	5	6	7	8
1	WRI	VIS	ies	0,5	1	3	\$	15			
2	NEL	CIG	Ř	200	500	1500	3000	Unil			
3	PHL	CIG	A	200	500	1500	3000	Unit			
4		TOD	<b>L</b>	3	15						

Order	Sta	Elem	Unit	Limits of category									
O, Q,		Lieni	CIII	1	2	3	4	5	6	7	8		
1	WRI	VIS	mi	0.5	1	3	5	15					
2	WRI	DIR	16 pt	1	5	9	12						
3	ACY	RLH	%	86	36								
4	ABE	RLH	%	86	96								

# TABLE B-7 PREDICTORS SELECTED FOR GROUPING TECHNIQUE FOR OFF CIG

## (a) 2-hr forecast

	Sta		,,,	Limits of category								
Order		Elem	Unit	1	2	3	- 4	5	6	7 81	5	
1	OFF	CIG	ñ	300	1000	1500	5000	Unk				
2	OFF	DBT	*F	21	31	41	51	61	71	81		
3		TOD	hr	. 7	19							
•		DOY	days	136	274						<u> </u>	

## (b) 4-hr forecast

Order	9ta	Elem	Unit	Limits of category									
Order				ì	2	3	4	5	6	7	8		
1	OFF	CIG	ft	300	1000	1500	5000	Uni					
2	DSM	CIG	tr	300	1000	1500	5000	Unl	1				
3	мкс	RLH	%	86	96								
i	GRI	CHG	ft	300	1000	1500	5000	Uni					

Order	9ta	Elen	Unit	Limits of category									
Order		Licia	CIUI	1	2	3	1	5	6	7	5		
;	OFF	CIG	ft	300	1600	1500	5000	Und					
2	DSM	C:G	ft	300	1.700	1500	5000	Ual					
3	мкс	RLH	%	86	96								
4	GRI	CIG	ft	350	1000	1500	5000	Uni					

# TABLE B-8 PREDICTORS SELECTED FOR GROUPING TECHNIQUE FOR OFF VIS

(a) 2-hr forecast

Order	Sta	Elem	Unit	Limits of category								
Order		Liein	Cint	1	2	3	. 4	5	6	ĩ	ķ	
1	OFF	VIS	mi	0,5	1	3	5	15				
2	OFF	DPT	*F	11	21	31	41	51	61			
3	OFF	DIR	16 pt	1	5	9	12					
4		DOY	days	136	201							

(b) 4-hr forecast

Order	Sta	Elem	Unit	Limits of category									
Order		Liem	Cit	1	2	3	4	5	6	7	4		
1	OFF	VIS	mí	0,5	1	3	5	15					
2	710	Tqq	•F	11	21	31	41	<b>S</b> 1	61				
3	OFF	DIR	16 pt	1	5	9	, ,2						
-1		DOY	days	136	201								

Order	Sta	Elem	Unit	Limits of alegory									
Order		Liem	Cint	1	2	.3	4	γ,	6	7	•		
;	OFF	Vis	mi	0.5	1	3	5	15					
2	DSM	CIG	ſŧ	300	1000	1500	5000	Unl					
3	GRI	CIG	ft	300	1000	1500	5000	Unl					
1		TOD	hr	3	15								

# TABLE B-9 PREDICTORS SELECTED FOR GROUPING TECHNIQUE FOR RND CIG

## (a) 2-hr forecast

Ordet	Sta	Elem	Unit			Lir	nits of cat	egory.			
O, Ge	J	Liem	Cint	ì	2	3	-1	5	6	7	ş
1	RND	CiG	ft	200	400	1560	5000	Unl			
2	СКР	RLH	ć	86	96						
3	AUS	CIG	ft	200	400	3500	5000	Uni			
÷.	CRP	СЮ	ft	200	400	1500	5000	Unl			

#### (b) 4-hr forecast

Order	Sta	Elem	Univ			Liı	nits of cat	egory			
	17,40			1	2	3	1	5	6	7	5
-	RND	CIG	ft	200	400	150G	5000	ual			
2	CRP	RLII	۲,	86	96						
3	AUS	CIG	ft	200	400	1500	5000	Unl			
4	CRP	CIG	ft	209	400	1500	5000	l'nl			

(c' forecast

~	Sta	Elem	Elem	Unit			Li	nits of cat	egory			
Order	54.2	Eitin	Cint	1	2	.j	4	5	6	7		
:	RND	CIG	ft	200	400	1500	5000	Unl				
2	CRP	RLH	7	86	<b>3</b> 6							
3	AUS	CIG	ft	200	400	1500	5000	Uni				
÷	CRP	CIG	ŗ,	2	400	1500	5000	Url				

# TABLE B-10 PREDICTORS SELECTED FOR GROUPING TECHNIQUE FOR RND VIS

### (a) 2-hr forecast

Order	Sta	Elem	Unit			Li	mits of car	egory			
Order		Liei.	Cin	1	2	3	4	5	6	7	8
1	RND	VIS	mi	0.5	1	3	5	15			
2	RND	DBT	•F	36	46	56	66	76			
3		DOY	days	136	201						
4		TOD	hr	3	7						

### (b) 4-hr forecast

Order	Az	Elem	Unit			Li	mits of cat	egory			
Order .		Lien	Cint	1	2	3	4	5	6	7	ь
;	RND	VIS	mi	0,5	1	3	5	15			
2	RND	DBT	•F	36	46	56	66	76			
3		DOY	days	136	201						
+		TOD	hr	3	7						

#### (c) 6-hr forecast

Order	Sta	Flem	Unit			Lit	mits of cat	egory.			
0,00	J	110111	\	1	2	3	4	5	G	7	۴
1	RND	VIS	mi	0.5	1	3	5	15			
2	RND	DIR	16 pt	1	5	9	12				
J	EFD	CIG	ft	200	400	1500	5000	Un1			
4	AUS	CIG	ft	200	100	1500	5000	Unl			

(a) 2-hr forecast

Order	Sta	Elem	Unit			Lin	nits of cate	gory	*		
Older	1 DCA CIG ft	Cinc	ì	2	3	4	5	6	7	õ	
1	DCA	CIG	ft	200	500	1000	3000	Unl			
2	DCA	DIR	16 pt	1	5	9	12				
3	DCA	DPT	•F	31	41	51	61	66			
4		DOY	days	136	201						

#### (b) 3-hr forceast

Order	Sta	Elem	Unit			Liı	nits of cat	egory		 
Order	J	Light	Cin	1	2	.5	+	;	- 6	 
1	DCA	CIG	ft	200	500	1000	3000	Unl		
2	DCA	ĎIR	16 pt	1	3	9	12			
3	DCA	DPT	:F	31	41	51	6)	66		
4		DOY	days	136	201	1				

#### (c) 5-hr forecast

Order	Sta	Elem	Unjt			Li	mits of cat	egory			
			Cili	1	2	3	1	3	e	7	ē
1	DCA	CIG	ft	200	500	1000	3000	Unl			
2	DCA	DIR	16 pt	1	ş	9	12				
3	DCA	RLH	Ţ	86	96						
4		TOD	hr	J	1,2						

#### (d) 7-hr forecast

Order	Sta	Elem	l nit			ž tr	ints of eat	rgorv			
0, 40.		2.1(1.11	\·	1	<i>:</i>		1		1.	7	-
;	DCA	CIG	ft	200	500	1000	3000	t'nl			
2	DCA	DIR	16 pt	i	3	9	12				
3	DCA	RLII	7	86	Sri						
4		TOD	hr	3	15						

TABLE B-12
PREDICTORS SELECTED FOR GROUPING TECHNIQUE FOR DCA VIS

#### (a) 2-hr forecast

Order	Sta	Elem	Unit			Lin	niis of cat	sãoi.			
Order	JAZ	Liem	Chit	1	2	3	4	5	6	7	ъ
1	DCA	vis	mí	0,5	1	2	3	15			
2	DCA	RLII	۶	36	96						
3	DCA	DIR	16 pt _	1	5	9	12				
4		тор	hr	5	18						

## (b) 3-hr !orecast

Order	Sta.	Elem	Unit			Lir	nits of cat	egory			
Cider		Liem	Cin	1	2	3	4	5	ß	7	·
1	DCA	VIS	mi	0.5	1	2	3	15			
2	DCA	RLH	7	56	96						
3	DCA	DIR	16 pt	1	5	9	12				
4		TOD	hr	ō	ls						

#### (c) 5-hr forecast

Order	Sta	Elem	Unit			Lir	nits of cat	ecory.			
Oriser		Lien	Cin	1	2	.5	4	5	6	7	;
1	DCA	VIS	mi	0.5	1	2	3	15			
2	MRB	CIG	ft	200	200 .	1000	3000	เม			
3	GVE	CIG	ſŧ	200	300	1000	3000	Unl			
4		TOD	hr	3	15				1		

### (d) 7-hr forecast

Order	Sta	Elem	Unst			Lı	mits of cat	egory			
Order	0,4		(,	1	<i>-</i>		,	•	6	;	•
:	DCA	VIS	mi	0,5	1	2	3	15			
2	DCA	RLII	·.	56	96						
3	DCA	DIR	16 pt	1	5	3	12				
4		TOD	hr	3	15						

TABLE B-13 PREDICTORS SELECTED FOR GROUPING TECHNIQUE FOR CEF CIG

(a) 2-hr forecast

Q-4	Sta	Elem	Unit			Liz	nits of cat	egory			
Order	344	ciem	Care	1	2	3	+	5	6	7	8
I	CEF	CIG	ft	200	600	1500	5000	Unl			
2	BDL	CIG	ft	200	600	1500	5000	Unl			
3	IDL	RLH	Æ	86	96						
4	IDI.	DIR	16 pt	1	5	Ĝ	12				

#### (b) 3-is forecast

Crder	Sta	Elem	Unit			Lit	nits of eat	gory			
croer	342	Liem	CIII	1	2	3	4	5	6	7	5
1	CEF	CIG	r.	200	600	1500	5000	Unl			
2	BDL	CIG	ħ	200	690	1500	5000	Unl			
3	IDL	RLH	Æ	86	96						
4	IDL	DIR	16 pt	ì	5	9	12				

### (c) 4-hr forecast

	9.	F1	Unit			Lir	nits of cate	egory			
Order	St.a	Elei	rant.	1	2	3	4	5	6	7	6
1	CEF	СЮ	ft	200	665	1500	5000	(Je <u>l</u>			
2	BOL	CIG	ft	200	600	1500	5000	Uzi			
3	IDL	RLH	7	86	96						
4	:TL	CIR	15 pt	ì	5	9	12				

#### (d) 6-hr forecast

C∉der	Sta	Elem	Lnit			Lir	nits of cat	egory			·/
Or Ger	544	Liem	Care	1	2	3	4	5	6	7	8
i	CEF	CIG	п	200	600	1500	5000	Uni			
2	IDL	ЯLН	¥.	96	96						
3	CEF	DIN	16 pt	1	5	9	12				
-;	ALB	CIG	ſŧ	200	600	1500	5000	Uni			,

# TABLE B-14 PREDICTORS SELECTED FOR GROUPING TECHNIQUE FCR CEF VIS

#### (a) 2-hr forecast

Ordei	Sta	Flem	Unit			Li	nits of cat	egory			
Order	Jiu	LICH	Cint	1	2	3	4	5	6	7	8
1	CEF	. 3	mi	0.5	1	3	5	15			
2	BDL	vis	mi	0,5	1	3	5	15			
3	IDL	RLH	94	86	96						
4	IDL	DIR	16 pt	1	5	9	12				

#### (b) 3-hr forecast

2.4	Sta	Elem	Unit			Li	mits of cat	egory			
Order	Sta	riem	Cint	1	2	3	4	5	G	7	8
1	CEF	VIS	mi	0.5	1	3	5	15			
2	BDL	VIS	mi	0,5	1	3	5	15			
3	IDL	RLH	Ţ	86	96						
4	IDL	DIR	18 pt	1	5	9	12				

#### (c) 4-hr forecast

	Sta	Elem	I limite			Lir	nits of cat-	egory			
Ord∈r	213	Fiem	Unit	1	2	3	1	5	6	7	8
1	CEF	VIS	mi	0,5	1	3	5	15			
2	BDL	VIS	mi	0.5	1	3	5	15			
3	IDL	RLH	7	86	96						
+	IDL	DIR	16 pt	l	5	9	12				

### (d) 6-hr torecast

\(\alpha\)	Sta	Elem	1 nu			Lin	nts of cate	gory			
O der	Sta	Liem	( nat	;	2	.3	1	5	G	7	
	CEF	VIS	mı	0.5	1	3	5	15			
2	BDL.	vis	mı	0.5	1	3	5	15			
3	IDL	PLH		36	96						
;	IDL	DIR	16 pt	1	5	9	12				

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from meteorological considerations, it is always clear what their limits are.

# B.5 Climatological Expectancy of Persistence

Climatological expectancy of persistence is a nonscreening technique. The primary predictor is the present observation of the variable to be forecast.

Generally, time of day and season are used as additional predictors. The form used in this study included day or night as a second predictor and warm-surface season or cold-surface season as a third predictor.

Since the predictors are always the same, tables are not given.

# B.6 Lund Contingency Prognosis

Tables B-15 through B-21 give the possible and selected predictors for Lund contingency prognosis. The number of possible predictors varies from 20 to 50, but there are always five selected predictors. This number was set by Mr. Iver Lund, the originator of the technique.

Each table lists the predictors available, predictors used, and order of predictors selected for each station for various forecast 'engths.

EXAMPLE. In Table B-15, Predictors for Lund Technique at ACY, the first column ("Sta") lists the stations that comprise the Atlantic City Airport network; the second column ("Elem") lists the variables that were reported and available for each of the network stations; the third column ("3-hr ceiling") lists all the predictors presented to the Lund technique for selection. The X's indicate a predictor presented but not selected, and the numbers 1 through 5 identify the predictors selected and their order. Thus, for 3-hr ceiling forecasts at Atlantic City Airport, there were 59 predictors available from the network (the total of the entries under "Elem"). Of these, 25 were presented to the Lund technique (the total of the entries under "3-hr ceiling"). The predictors selected were

- 1. ACY-CIG (Atlantic City, ceiling),
- 2. ACY-SNS (Atlantic City, stability classification),
- 3. PHL-SNS (Philadelphia, stability classification),
- 4. MIV-SNS (Millville, stability classification),
- 5. WRI-SNS (McGuire AFB, stability classification).

TABLE B-15
PREDICTORS FOR LUND TECHNIQUE AT ACY

Sta	Elem			Ceil	ing					Visi	bility		
		2-hr	3-hr	4-hr	5-hr	6-hr	7-hr	2-hr	3-hr	4-hr	5-hr	6-hr	7-hr
ACY	CIG		1		1		1		3		4		5
	vis						х		1		1		1
	uwc						х		х				
	RLH						х		х				
	TCA		х		х		х		х				
	CLH						х						
	PNP		х		x		x		х				
	FNF						х		х				
	SNS		2		3		4		4		5		х
DCA	CIG		x		х		2		х				
	vis								х		х		х
	uwc						х						
	RLH								х				
	TCA	İ					х		х				
	PNP								х				
ORF	CIG		х		х				Х		х	İ	x
	VIS								x		х		x
	RLH								x				
	TCA		x	[	х				x				
NEL	CIG		х		х		x		x				
	VIS								X		х		x
	RLH								х			1	]
	TCA	[	x		x			[	x		ĺ		
	SNS										x		x
wri	CiG		х		х		5		х				
	vis		 						×		x		х
	RLH	}					x		х			1	
	TCA		х		х	ĺ			x		x		x
	PNP		х		x				х				
	FNF					İ			х		1		
	SNS		٤		5			]	х		x		3
PHL	CIG								х				
	Vis								х		х		х

1		ı	ı	1	1	1		1	ı	1	:	•	ł
	VWC		İ			l	х	Í			ĺ		
1	RLH							j	×				
	TCA		х		х		х		х	:			
	PNP								х				
	FNF								х				
	SNS		. 3		4	ļ	] ]		2		2		2
MIV	CIG		х		х				х				
	vis								х		х		х
	TCA								х				
	PNP		х		х				х		х		x
	FNF								х				
	SNS		4	i I ,	х				х		х		х
SBY	CIG		х		х				5		x		х
	vis								х				
	TCA								x		x		x
	SNS		х		х						·		
MDT	CIG								x				
	VIS								х				
	TCA								х		х		х
]	SNS		х		x						x		x
AVP	VIS								х				•
	VWC						х		x				
	TCA		х		х		x		^		v		.,
	SNS		x		2		•		,,		х		X
TOD			! i				3		х		3		4
TOD	TOD		X		X						х		x
DOY	DOY		Х		Х						х	<u> </u>	Х

TABLE B-16
PREDICTORS FOR LUND TECHNIQUE AT IDL

Sta	Elem			Ceil	ing					Visi	bility		
		2-hr	3-hr	4-hr	5-hr	6-hr	7-hr	2-hr	3-hr	4-hr	5-lır	6-hr	7-hr
IDL	CIG	1	1		l		1	4	х		1		х
]	vis	х						1	1		5	]	5
	uwc	x			х		x	х					x
Î	vwc	x			x		x						
	RLH	x			x		x	х					х
	SCL	х			¥		x						
	TCA							х					х
	OCA	х			Х		x	х				<u> </u>	х
	PNP							х					х
	FNF							х					х
	SNS		5									Ì	
FOK	CIG	х			х		х	х					х
,	VIS							х	X.		х		х
	RLH	х						х					x
	TCA	3	х		x		х	х	х		х		x
	SNS		х					•					
BGM	CIG	х			X		х						ĺ
	VIS							х		Ì			х
	AM.C				X		х	х					x
	TCA	2	х		x		3	х					х
	SNS		х					х					x
TEB	CIG	х	х		х		х	x			! :		х
1	VIS		х					x	х		х		x
	SNS								5	)	x		
NEL	CIG	х			х		х	х	4		x		4
	VIS					•	ļ	x					x
	TCA	х	х		x		х	x					х
1	OCA	х			х		х						
	CLA	х			х		х						İ
	CTL	х			x	}	х		•			1	
	CLII	х			х		х				,		
	PNP							x					x

	FNF	ļ	1			l		х		Ī			х
	SNS		x				l		x		x	I	
ALB	CIG	х	х		х		х	х				1	x
	vis			1				x					
	TCA	х		ì	х	i	х	x	x		х	l	х
	SNS		4	1				3	x	]	4	l	3
PVD	CIG				х		х	х					x
	vis		ļ					х	x		x		x
] .	TCA	х	х		5		х	x					x
	CLA	х			×		х						
	CLH	х			x		х				Ì	. 1	
} }	SNS								2		3		
BDL	CIG	х			X		х	X					x
	VIS							х					х
	VW'C		X		X		х						
	TCA	4	X		X		5	х					х
1 1	OCA	5			4		x						
	CLA	х			X		x						
	CLH	х			X		х						
	FNF								x		X		
	SNS		3					2	3		2		2
CON	CIG	х			X		Х						
	VIS							õ	X		х		х
	UWC								х		X		
	TCA	x			X		x						
	SNS		2										
SBY	CIG	х	х		3		4	x					х
	Vis							х	х		х		x
	TCA	х	х		x		х	X	X		X		х
MDT	CIG	х	х		2		2	х					X
	VIS							х	X		х		1
	TCA	х	х		x		х	х	x		х		х
	SNS		х							i i			
TOD	TOD	х	х	j :				х	x		x		х
DOY	DOY	х	x					×	×		x		x

8-2

TABLE B-17
PREDICTORS FOR LUND TECHNIQUE AT WRI

Sta	Elem			Ceil	ing					Visi	bility		
		2-hr	3-hr	4-hr	5-hr	6-hr	7-hr	2-hr	3-hr	4-hr	5 -hr	6-hr	7-hr
NEL	CIG	5		x		х		2				4	
	VIS							х		x			
	uwc	х		х		х		х		х		х	
	vwc	x											
	RLH	х		х				х		х			
	TCA	7		х				х		х	· :		
<u> </u>	PNP	·				х			•				
	FNF		}								; 	х	
WRI	CIC	1		1	·	х				х			
	vis	1						1		1		ì	
	uwc	х		х		х		х		х		х	
	vwc	x	ļ	х				х					
	LH	Х	!	х	,	х		х		x		х	
	TCA			x						х			
	PNP	x				х							
	FNF	i i						х		х	<u> </u> 	х	
PHL	CIG	3	ļ	2		1		4		2			
	VIS							х				х	
	uwc	х	] 										
	vwc	х		х				x		х			
	RLH	x		х		х		x		х		х	
	TCA	х		x				x		х			
	PNP	х				х		[				İ	į
	FNF							X	Ì			х	
ACY	CIG	2		5		3		3		3			
	vis	х		х				x	] [	х		x	
	uwc	х				х		x				x	
	vwc	х						х					
	RLH	х		х				х		х			į
	TCA	۸.						х				l	
	PNP	х	İ	x		x							
	FNF							х	ļ	х		х	İ

ABF	oro I	. I	ı	v l	1	x	1	- 1	i	ı		x	ı
ABI	CIG	x		х		^		5	İ	.		^	1
	vis	.	1					х		X		,	
	UWC	X		x		x	1	x		x		х	
1 1	vwc	х						.,					
]	RLH	X		x		x		x		X		x	1
	TCA	X	ļ	X				x		x		ĺ	}
EWR	CIG	X		х		х		X		x		.	]
1	VIS	X		l		1	1	X		1	1	х	1
	UWC	Х						X				Ì	- 1
1 1	VWC	Х	J	Ì				Х		ĺ			ĺ
	RLH	Х	1		ļ		l	х			}		
1 1	TCA	4		х		Х	1	x		х		Х	
	PNP	į				х					ĺ		
	FNF		i									x	
DCA	CIG			4		2				х	]		
	VIS			]	İ			ļ			1	2	
	UWC			Х				l	Ì	X	Į		- 1
	RLH			x	į	Х				x		х	
	PNP			Х		х							Į
	FNF						]			Х	Î	х	
ORF	CIG			3		4				4		3	
	UWC			х		х			}	X		х	
	RLH			х						х			
	TCA			х		х				х		Х	
IPT	CIG			х		х							
	VIS									5		5	
	υwc			х						X			
	RLH			х		X				х		х	
	TCA			х		x				х		х	
ALB	CIG					Х						X	
	RLH					х						Х	
	TCA					х						x	
PVD	CIG					5						х	
	vwc	]				х					1	х	
	TCA					х					İ	х	
TOD	TOD	х		х		х		х	[	x		х	
DOY	D∩Y	х		х		Х	<u> </u>	X		x	<u> </u>	х	

TABLE B-18
PREDICTORS FOR LUND TECHNIQUE AT OFF

Sta	Elem			Ceil	ling				·	Visi	bility		
J. a	, weni	2-hr	3-hr	4-hr	5-hr	6-hr	7-hr	2-hr	3-hr	4-hr	5-hr	6-hr	7-hr
OFF	CIG	1		1		ı		х		х		х	
	vis	х		х		;		1		1		1	
	RLH	х		х				х					
	TCA	х						х		х		х	
	PNP	х		х		х						х	
	FNF	х											
	SNS	5		х		5				2		x	
HON	CIG	х		х		х						<b>!</b>	
	vis							4		,			
	uwc					х				х			
	TCA									х	]	] }	
	SNS			3									
FSD	CIG	х		х		х							
	vis	2						5		x			
	υwc	х						х					
	RLH			х		х		х		x		х	
	TCA			х				х		х		х	
	PNP											х	
	FNF									х		х	
	SNS			4		3						5	
GRI	CIG	4		2		2		х					
	vis							3		3			
	vwc	х											
	RLH					х				х			
	TCA			х				х		4		х	
	PNP											x	
	FNF											х	
	SNS					х		2				4	
SSH	CIG	3		х		4					]		
	VIS							х			ļ	ĺ	
	υwc			х		x		х					
	TCA	х		х		x		х		5			
	PNP	,v		х							( 	X	

		,											
	SNS	x		5	-	]		1		1		Í	İ
MSP	CIG	x	į	х	ļ	χ.	- [					Ì	
	VIS			į				x	1	- [	- [	1	
) j	υwc						l	- 1				x	-
	TCA	x	Ì	Ì	1		Ì	x		х	Ì		
DSM	CIG	х		х	1	<b>x</b> !	Į	x		x	ĺ	i	
	VIS			x	1		j	x		x (	l	į	
	UWC				1	]	1	x	1				
	RLH	х	1	}		х	ĺ	x	Ì	x		j	Ì
	TCA	х		x	Í	х		1		j		x	1
	PNP				-			1	ĺ	х			
	FNF		-	ļ		1	- (			х		x	1
	SNS										Ì	2.	1
MKC	CIG	х		x		х	1		}			İ	j
	vis				1					x	-	İ	
	υwc				1					х			
	vwc	х		İ							į		
	RLH	х					İ		1		ì	х	
	TCA	х				х		х		х		х	
	PNP			х		х		х					
1	FNF											x	
	SNS											3	
SCF	CIG	х		х		х							
	vis	х					Ì						
	UWC							x				х	
	TCA	х		x				х		X			
	PNP	х		х		х							
LBF	CIG			х		X							
	UWC			į						x		x	
	TCA					х		х		x		х	
MLI	CIG	1				x							
	UWC		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \			х				x		х	
	TCA	Ì	!	х		х		х		x		ı x	
TOD	TOD			х		х		х	Ì	x		x	[ ]
DOY	DOY		ĺ			х		x		х		х	

TABLE B-19
PREDICTORS FOR LUND TECHNIQUE AT RND

Sta	Elem			Ceil	ling					Visi	bility		
,,,,		2-hr	3-hr	4-hr	5-hr	6-hr	7-hr	2-hr	3-hr	4-hr	5-hr	6-hr	7-hr
RND	CIG	1		1		1		х		х		х	
	vis	4		х		х		1		1		1	
	UWC	x		х		х		х		х		::	
	RLH	x		х		х		х		х		х	
	TCA	x		х		х		х		х		х	
	PNP	x		x		х		'		х		x	
	FNF	х		х		х			•	х		х	
	SNS	х		4		3		2		2		3	]
DLF	CIG	х		х		х		х		х		×	1
[	VIS							4		х		х	1
	twc	Į		x		x		x		х		х	
	vwc	х											
	RLII	х		х		х				х		х	
	TCA	х		x		х		х		х	l	x	! 
AUS	CIG	х		х		х		x		х		х	
	VIS			2		2		5		5		5	
	VW.C	х	•	х		х		x		х		х	
	RLH	х				x		х		х			
1	TCA	х	<b> </b>	x				х		х		x	
	PNP	i		х		x.				х		x	
	SNS	5	i I	х		х				4		4	
WAO.	CIG			х		X							
	VIS			İ		Ì		X		X	ĺ	X	İ
	MC			х		х				х		λ	i :
	RLII	×		х			! (			X		1	1
	тсл	x		Х		х		x		X		X	1 1
	PNP				<b>)</b>	x							
!	SNS			5		5	İ	ŀ		ļ	1	X	:
CRP	CIG	x		x		х		x		x	1	; X	1
	vis	x		x		х	1	x		х		x	
	f.M.C	×		х		х		х		х		i x	
	ни		) 					ĺ				x	
	TCA			x		х		x		x		X	

	PNP	х	х	1	x	1	1		x		x	
	FNF				х			-	x		x	-
	SNS	3	3		4				3		2	
FFI	CIG	х	х		х		х		x		x	
	vis	х	х				x		x		x	
	บพ่	х	х		х		x		x		x	}
	TCA	х	х		х		x		х		x	
AC	F VIS						х				1	1
	TCA	х	х		х		х	- 1	х		x	İ
LR	CIG	х	х		х						х	
1	vis	2					3		к	Ì	x	1
	UWC				X				x			
	RLH				X						х	. 1
	TCA		х		x		х		х		х	
	PNP	х										
	FNF	х										
BR	o cig		х		х							
	vis								х		x	
	uwc		x		х		x	1	х		x	
-	RLH										х	
	TCA		X		х		х		X		х	
	PNP										x	
	SIIS	1							x			
то	D TOD	х	х		х		X		х		x	
DO	Y DOY	x	х		х		х		х		х	

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TABLE B-20 PREDICTORS FOR LUND TECHNIQUE AT DCA

Sta	Elem			Ceil	ing					Visi	bility		
~*	21044	2-hr	5-hr	4-hr	5-hr	6-hr	7-hr	2-hr	3-hr	4-hr	5-hr	6-hr	7-hr
ACY	CIG	х	х		х		х						
	vis				X		х				х		х
	T'CA	х	х					х	4		х		х
	នាវន				х		х						
DCA	CIG	1	ì		1		x	4	2		1		x
	vis	х	х		х		x	1	ı		5		х
	uwc	х	х		X		х	х	x		х	Ì	х
	RLH	х	х										İ
	TCA	х	х		х		х	х	X		х		2
	PNP	х	х		х		х	х	х		х		х
	FNF	х	х					х	х		х		1
	SNS	5	х		5	1	3	3	х		3		x
ORF	CIG	х	х		х		х						
	vis	х	х								Ì		
•	υwc				х		х				х		x
	TCA				х		х	х	х		x	İ	5
	SNS	3	3					х	х				
IPT	CIG	x	х	•									
	TCA	х	x		x		х	х	3		х		х
	SNS	2	2		2		х	x	x		x		x
MRB	CIG				х		х				2		x
	vis							1			x		х
	vwc	х	х		ļ								
	TCA	х	x	ļ	х		х	x	5		x		4
	PNP	х	x										
	SNS	х	4		3		x	x	х		x		x
GVE	CIG	x	x		х		2	x	х		x		x
	VIS				х		х	x	x		х		x
	uwc							İ			х		х
	TCA	x	x		х		x	х	х				
	SNS	4	5		4		5	2	x		x		x
NHK	CIG	x	х		x		1	х	x		x		x

j i	• • •		٠٠ ا	í	,	i			٠- ا	ı	,	{		ı
	TCA	х	х		х		х	х	х					
	PNP	х	х	ļ										ĺ
	SNS	х	х					х	х					
ANP	CIG	х	х		х		х	х	х		x		х	ĺ
	VIS	х	х		x		х	х	x		х		х	l
	vwc	х	x		х		х	х	х		X		х	ĺ
	TCA	х	·x					х	x		x		3	
	PNP				х		х				х		x	
	FNF				х		х							l
	SNS				х		4	5	х		4		х	ĺ
ROA	TCA	х	х		х		х	х	х		X		х	
	SNS				х		х							١
PIT	TCA	х	х		х		×	·x	х		х		х	l
	PNP	х	х											l
	SNS	х	х		х		х	х	х		х		х	I
TOD	TOD	х	х		x		х	х	х		х		х	l
DOY	DOY	х	х	}	х		х	х	х		х		x	
l		l	l	i	ĺ	1	i		l	1	i	}	İ	ì

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TABLE B-21
PREDICTORS FOR LUND TECHNIQUE AT CEF

Sta	Elem			Ceil	ling			Ī		Visi	bility		
or t	r.iem	2-hr	3-hr	4-hr	5-hr	6-hr	7-hr	2-hr	5-hr	4-hr	5-hr	6-hr	7-hr
IDL	CIG	х	х	х		5			-				
	vis	х	х					х	х	х		x	
	uwc	х				х						x	
	RLH	х											
	TCA					х		х	x	х			
	PNP			x									
	SNS	3	х	5		Ì							İ
CEF	CIG	1	1	1		х		х	х	х		х	
	vis	х	x	х		x		1	1	1		х	
	UWC	х	х	х		x		х	х	х	}	x	Í
	vwc							х	х	x		x	
	RLH	х	x	X				х	х	х		x	
	TCA	х	x	x		x		5	х	x		х	
	PNP	х	x	x		х		х	х	x		x	
	FNF	х	x	x		x		x	x	x		x	
	SNS	5	x	4		4		3	2	4			
BED	СЮ	х	x	x		x							
	vis	х	х					х	x	х		x	
	uwc	х						1					
	vwc			х	i			х	x	x	l	x	
	TCA	х	х			х		x	x	x		х	l
	FNP	х		Į									1
	SNS	х	5	x	1			x	x	5			
SYR	CIG	х	x										
	TCA	х	х	x		x		х	x	x		х	
	SNS		-									x	
BTV	CIG	х	х										
	TCA	х	х	x		x		x	x	х		x	]
	SNS											x	
ALB	CIG	х	х	x		x						x	
	vis							х	x	x		x	
	vwc	х		x	}	x							

	TCA	x	х	x			1	х	x	x		х	
j	PNP	х					Ì						
	SNS	х	х	х	!	х		х	х	х		3	
PVD	CIG	х	х	х		x		х	х	х			
	VIS	х	х					x	х	х		х	
	uwc	х											
	vwc .			А		x						х	
	TCA	х	х	х		x		х	х	х		х	
	PNP	х		x		x		х	x	х		х	
	zviz	4	4	х		2		4	4	ž		2	
BOL	CIG	х	х	х		i		ж	х	х		5	
	vis	х		х				х	5	х		1	
	TCA	х	x			x							
	PNP	х		х		!		x	х	х			
	FNF	х											
	SNS		3	3				2	3	3			
ACY	CIG	х	х										
	TCA	х	х	х		x		х	х	х		X	
AVP	CIG	х	х										
	vis					:						х	
	TCA	х	x	х		x		х	х	х		х	
	SNS			x								4	
PWM	CIG	x	x										
	TCA	×	х	x		x		х	x	х		х	
	SNS	2	2	2		3							
TOD	TOD	х	х	x		x		х	х	x		х	1
DOY	DOY	х	x	x		x		х	х	х	1	х	

# B.7 Multiple-discriminant Analysis

## B.7.1 Zero-one Variables\*

Before each predictor is presented to the multiple-discriminant analysis computer program for screening, it is transformed into a set of zero-one variables. The method for converting values of observed meteorological parameters to corresponding values of zero-one variables is explained by the following example.

EXAMPLE. Total cloud cover is a normally observed meteorological parameter. Its value is reported in tenths of sky covered. A reasonable set of mutually exclusive and exhaustive categories into which total cloud cover can be broken consists of sky conditions of clear, scattered, broken, and overcast. Let  $X_{14}$  be total sky cover and  $Z_{14,1}$ ,  $Z_{14,2}$ ,  $Z_{14,3}$ , and  $Z_{14,4}$  be clear, scattered, broken, and overcast, respectively. Thus, the meteorological parameter  $X_{14}$  generates four predictor variables determined by zero-one values assigned to  $Z_{14,1}$ ,  $Z_{14,2}$ ,  $Z_{14,3}$ ,  $Z_{14,4}$ . Table B-22 shows the method of conversion. To transform a value of  $X_{14}$  to the proper zero-one variables, four questions are asked:

- (a) Is the sky condition clear?
- (b) Is the sky condition scattered?
- (c) Is the sky condition broken?
- (d) Is the sky condition overcast?

When a question is answered affirmatively, a 1 is entered in the appropriate column; when answered negatively, a 0 is entered in the appropriate column. The Z-variables are the ones presented to the MDA technique for screening.

All meteorological parameters do not generate the same number of zero-one variables; the number of variables depends upon the number of mutually exclusive and exhaustive cologicals into which the meteorological parameter can be reasonably divided. Table B-23 lists the meteorological parameters used to obtain the Z-predictors (first color a , the number of zero-one variables generated (second column), and the limits of the mutually exclusive and exhaustive categories into which each

Easewhere in a diterature surrounding the application of the multiple-discriminate analysis to methorological problems, these have been referred to as dummy, binary, dichotomous, and item variables.

TABLE B-22 CONVERTING REPORTED VALUES OF TOTAL SKY COVER TO VALUES OF ZERO-ONE VARIABLE

		Correspondir	ng value of X	14
Total sky cover, tenths of sky	Z 14, 1 (clear)	Z 14, 2 (scattered)	Z 14, 3 (broken)	Z 14, 4 (overcast)
0	1	0	0	0
1	0	1	0	0
2 .	0	1	0	0
3	0	1	0	0
4	0	1	Ó	0
5	0	1	0	0
6	0	0	1	0
7	0	0	1	0
8	0	0	1	0
. 9	6	0	1	0
10	Ú	0	0	1

TABLE B-23
ZERO-ONE VARIABLES GENERATED BY EACH METEOROLOGICAL PARAMETER

Meteorological parameter	Number of zero-one variables	Limits of categories
CIG VIS	5 5	The class limits for all predictor stations in a network are identical to the operational limits of the predictand variable. See Table 2-1 of the main body [7].
UWC VWC DBT DPT RLH STP	5 5 5 5 4 4	Limits were determined from the frequency distribution of the variable.  The limits are the values of the variable which divide the distribution according to desired percentage. The percentages are such that the error in grouping is minimized. See Bryan* for a detailed exposition.
		Cloud amount, 10ths of say covered
TCA	4	1. TCA < 1 2. $1 \le TCA < 6$ 3. $6 \le TCA \le 9$
		4. 9 < TCA
		Height of cloud layer, ft
CLH		1. CLH < 100  2. 100 ≤ CLH < 200  3. 200 ≤ CLH < 300  4. 300 ≤ CLH < 400  5. 460 ≤ CLH < 500  6. 500 ≤ CLH < 600  7. 600 ≤ CLH < 700  8. 700 ≤ CLH < 800  9. 800 ≤ CLH < 1,600  10. 1,000 ≤ CLH < 1,560

<sup>\*</sup>Bryan, J. G., and J. R. Southan, Optimum Subdivision of a Variable by the Method of D. R. Cox. TRC-21, The Travelers Research Center, Inc., Apr. 1962.

Meteorological parameter	Number of zero-one variables	Limits of cat	egories
		Height of cloud	layer, ft
		11. $1,500 \le C$	LH < 3,000
		12. $3,000 \le C$	LH < 5,000
		13. $5,000 \le C$	LH < 10,000
		14. $10,000 \le CL$	H < 20,000
		15. $20,000 \le CL$	Н
		Cloud t	уре
CīL	14	1. None	
		2. Cirrus and cirrocu	mulus
		<ol> <li>Thin obscuration of and obscuration of</li> </ol>	- 1
		4. Cirrostratus	
		5. Altocumulus and al castellatus	tocumulus
		6. Altostratus	
		7. Cumulus	
		8. Fractocumulus	
		9. Fractostratus	
·		10. Stratocumulus	
		11. Cumulomammatus	and cumulonimbus
		12. Nimbostratus	
		13. Stratus	
		14. Thin fog and fog	
		Direction	Speed, knots
WND	9	1. Any	0 ≤ SPD ≤ 5
		2. NNE through E	5 < SPD ≤ 12
		3. NNE through E	12 < SPD
		4. ESE through S	$5 < SPD \le 12$

Meteorological parameter	Number of zero-one variables	Limita of cat	egories
		Direction	Speed, knots
		5. ESE through S	12 < SPD
		6. SSW through WSW	5 < SPD ≤ 12
		7. SSW through WSW	12 < SPD
		8. W through N	5 < SPD ≤ 12
		9. W through N	12 < SPD
		Weather element	Teletype code
WEA	12	1. None	(No symbol)
,		2. Rain	R,R,R+
		3. Rain showers	RW-,RW,RW+
	•	4. Drizzle	L, ZL-, L, ZL, L+, ZL+
		5. Snow	S-,SP-,IC-,SG-,S,SP, IC,SG,S+,SP+,IC+,SG+
		6. Snow showers	SW-,SQ-,SW,SQ,SW+, SQ÷
		7. Thunder, hail	T,Q T+,Q+,TOR,Q-, A-,A,A+,AP-,AP, AP+
		8. Freezing rain	ZR-,E-,EW-,ZR,E, EW,7R+,E+,EW+
		9. Fo <sub>š</sub>	F,IF
		10. Ground fog	GF
		11. Blowing dust	BD,BN,BS,BY
		12. Smoke	K,H,KH,D
TOD	1	A value 1 indicates the forecast is between the and 1300 inclusive.	
DOY	1	A value 1 indicates the forecast is made is be and 304th days of the	etween the 151st

meteorological parameter has been divided (third column). Definition of the abbreviations used for the meteorological parameters can be found in Section B.2.

## B.7.2 Possible Predictors

The number of possible predictors presented to the multiple-discriminant analysis technique is large. The Lund technique screened as many as 50 predictors, whereas the multiple-discriminant analysis technique screened more than 400 in all cases. Tables B-24 through B-30 list the possible predictors presented to the multiple-discriminant analysis technique. The total number of possible predictors is given at the bottom of each table.

One set of possible predictors was used for each evaluation station. Predictors for each predictand variable and each forecast period were selected from this same set. CIG, VIS, RLH, TCA, WEA, and WND were used at all the predictor stations whenever possible. DBT, DPT, STP, CLH, and CTL, whenever available, were used at the predictand station only. TOD and DOY were always used. UWC and VWC were used only at PWM as predictors for Westover.

# **B.7.3** Selected Predictors

Tables B-31 through B-44 list the predictors selected by the multiple-discriminant analysis technique for all predictands in the evaluation. Each table lists the order of selection (statistical screening criteria), the predictor station, the predictor variable, and the limits of the predictor variable.

EXAMPLE. In Table B-31(a), the predictand is the 3-hr forecast of Atlantic City ceiling; the most important predictor is Atlantic City ceiling equal to or greater than 1000 ft but less than 3000 ft; 20 statistically significant predictors were selected.

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TABLE B-24
MDA POSSIBLE PREDICTORS FOR ACY

	No. of 0-1	. Station												
Elem	variables	ACY	DCA	ORF	NEL	WRI	PHL	MIV	SBY	MDT	AVP			
CIG	5	X	х	X	X	Х	Х	X	Х	X	X ·			
vis	5	X	x	X	x	X	Х	X	х	X	x			
UWC	5													
vwc	5													
DBT	.5	X												
DPT	5	Х												
RLH	4	X	x	X	х	X	X	X	X	x	х	ļ		
STP	4	X												
TCA	4	x	х	x	х	x	х	х	х	x	X			
CLH	15	X												
WEA	12	x	· X	x	х	X	X	X	х	x	X			
WND	9	x	х	X	x	X	x	X	x	х	х			
TOD	1	X												
DOY	1	X												

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TABLE B-25
MDA POSSIBLE PREDICTORS FOR IDL

	No. of 0-1	Station												
Elem	variables	ЮL	FOK	BGM	TEB	NEL	ALB	PVD	BDL	CON	SBY	MDT		
CIG	5	X	X	X	Х	X	X	X	X	X	X	Х		
vis	5	X	x	X	х	X	x	х	X	x	x	x		
uwc	5													
vwc	5	:												
DBT	5	X												
DPT	5	X												
RLH	4	X	x	X		X	х	X	X	х		x		
ŞTP	4	X		ļ.										
TCA	4	х	X	х		X	x	х	X	X	х	X		
CLH	15					,								
WEA	12	X	x	x	x	x,	х	X	х	х	Х	х		
WND	9	X	x	x	x	х	Х	х	X	X	х	x		
TOD	1	х												
DOY	1	X												

B-40

TABLE B-26
MDA POSSIBLE PREDICTORS FOR WRI

	No. of 3-1		Station										
Elem	variables	WRI	NEL	PHL	ALB	PVD	ACY	DCA	ORF	IPT	ABE	EWR	
CIG	5	X	х	X	X	X	Х	X	X	Х	X	Х	
VIS	5	X	x	х	X	X	х	х	X	X	X	x	
uwc	5												
vwc	5												
DBT	5	X											
DPT	5	X											
RLH	4	X	х	x	Х	Х	X	X	X	x	х	X	
STP	4	•											
TGA	4	x	K	X	X	х	X	X	X	х	X	X	
CLH	15												
WEA	12	Х	X	Х	Х	X	x	x	X	X	Х	Х	
WND	9	х	х	Х	х	x	Х	х	x	х	X	X	
TOD	1	х											
DOA	. 1	X											
Total	umber of poss	ible pre	dictare =	- 4.·1		<del></del>							

TABLE B-27
MDA POSSIBLE PREDICTORS FOR OFF

	No. of 0-1	Station										
Elem	variables	OFF	HON	FSD	LBF	GRI	SSH	MSP	MLI	DSM	MKC	SGF
CIG	5	Х	Х	Х	Х	Х	Х	Х	X	X	Х	Х
vis	5	Х	x	х	Х	x	x	X	X	х	x	x
uwc	5											
vwc	5										İ	
DBT	5	X										
DPT	5	Х										
RLH	4	X	X	х	x	<b>x</b> .		X	X	X	X	x
STP	4											
TCA	4	X	x	X	x	x	x	X	X	х	x	x
CLH	15											
WEA	12	X	X	x	x	x	X	x	X	X	X	X
WND	9	х	X	х	x	X	x	x	x	X	X	x
TOD	1	х										
YOQ	1	X										

TABLE B-28 MDA POSSIBLE PREDICTORS FOR RND

	No. of 0-1	,	Station											
Elem	variables	RND	DLF	AUS	WAO	ORP	EFD	ACF	LRD	BRO	LOH			
CIG	5	Х	X	X	X	X	X	X	X	X	X			
vis	5	х	x	X	X	X	X	X	X	X	x			
YWC	5													
DBT	5	x												
DPT,	5	Х												
RLH	5	x	x	x	X	X	X	X	х	x	x			
STP	4	x												
TCA	4	x	x	х	X	x	Х	X	х	х	x			
CTL	14	х												
CLH	15	х												
WEA	12	x	х	x	x	х	X	x	x	х	X			
WND	9	х	x	х	x	Ж	Х	x	X	X	X			
TOD	1	X												
DOY	1	X												

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TABLE B-29
MDA POSSIBLE PREDICTORS FOR DCA

	No. of 0-1		Station										
Elem	variables	ACY	DCA	ORF	IPT	MRB	GVE	NHK	ANP	ROA	PIT		
CIG	5	X	X	X	X	х	X	X	X	X	х		
VIS	5	X	x	x	X	X	х	X	X	Х	X		
VWC	5												
DBT	5		x										
DPT	5		x										
RLH	5	.X	x	x	Х			X	X	Х	X		
STP	4		х										
TCA	4	X	x	X	X	X	X	X	X	Х	X		
CTL	14		X										
CLH	15		x									,	
WEA	12	x	х	X	x	х	X	X	X	X	X	1	
WND	9	X	x	x	х	х	X	Х	X	х	X		
TOD	1		X							:			
DOY	1		Х										

B-4.

TABLE B-30
MDA POSSIBLE PREDICTORS FOR CEF

	No. of 0-1	,					Station					
Elem	variables	IDL	CEF	BED	SYR	BTV	ALB	PVD	BDL	ACY	AVP	PWM
CIG	5	X	х	X	X	X	X	X	X	X	X	X
VIS	5	Х	x	X	X	X	X	X	X	X	X	X
UWC	5											X
vwc	5											X
DBT	5		x									
DPT	5		x									
RLH	4	x	x	X	X	X	X	X	X	x	X	x
STP	4			<b>!</b>								
TCA	4	x	x	x	x	х	x	x	X	х	х	х
CLH	15											
WEA	12	Х	x	X	Х	х	X	х	х	х	х	x
WND	9	X	х	x	X	х	x	x	x	x	х	x
TOD	1		х									
DOY	1		X				<u> </u>					

# TABLE B-31 MDA SELECTED PREDICTORS FOR ACY CIG

(a) 3-hr forecast

(b) 5-h: forecast

(c) 7-hr forecast

أأرا فالمراج بالمراج والمتحارض والمتحارض والمتحارض والماري

		(a) 3-hr	forecas	(			(b) 5	hr forec	ast				(c)	7-hr forc	ecast
Order	Sta	Elem	Unit	Limits	Order	Sta	Elem	Unit	Limks		Order	Sta	Elem	Unit	Limite
1	ACY	CIG	£t.	3960 ≤ CIG	1	PHL	CIG	ſŧ	3000 ≤ C1G	Γ	1	PHL	CIG	ſŧ	3000 ⊈ CIG
2	ACY	CIG	n	1000 ≤ CIG < 3000	2	ACY	CIG	ſŧ	3000 ≤ C1G		2	DCA	CIG	ft	3000 ≤ C³G
3	PHL	CIG	a	3000 ≲ CIG	3	DCA	CIG	ıì	3000 ≤ CIG		3	ACY	TCA	10ths	9 < TCA
4	ACY	CIG	ſt	CIG < 200	4	ACY	CIG	ſſ	1000 ≤ CIG < 3000		4	DCA	WEA		Rain
5	DCA	CIG	ſŧ	3000 ≤ CIG	5	мот	WEA		Rain		5	ACY	W'EA		Fog
5	MIV	WEA		Rain	6	ACY	CfC	ß	CIG < 200		6	MDT	WND	knots	3 < WND* ≤ 12
7	ACY	CIG	ft	200 ≤ CIG < 500	7	MDT	WND	knots	5 < WND* ≤ 12		7	ACY	CIG	ſt	3000 ≤ CIG
5	MIV	CIG	ft.	3000 ≤ CIC	8	SBY	WEA		Fog		8	MDT	WEA		None
9	MIV	CIG	ft	1090 ≤ CIG < 3000	9	MIV	WEA		Kain	ı	9		тор	br	0200 ≤ TOD ≤ :300
16	NEL	WND	knots	5 < WND* ≤ 12	10	тим	WEA		Snow		10	NEL	M.V.D	knots	5 < WND* ≤ 12
11	ыrv	VIS	ភាវ	V15 < 0.5	11	WRI	WND	knots	5 < WND* ± 12	-	11	ORF	RLH	Ÿ	91 < RLH
12	MDT	MEV		None	12	MOT	CIG	ſŧ	1000 ≤ CIG < 3000	1	12	DCA	CIG	ft	1000 = CIG < 3990
13	SBY	WEA		Fog	13	PHL	CIG	ft	1000 ≤ CiG < 3000	1	13	MDT	TCA	10ths	9 < TCA
14	NEL	CIG	ft	3090 ≤ CIG	14	]	TOO	hr	0290 ≤ TOD ≤ 1300		14	WRI	WND	knots	12 < WND*
15	ACY	CLH	ſt	100 ≤ CLH < 200	15	DCA	RLH	7	89 < RLH		15	WR:	WND	knots	12 < WND)
16		TOD	hr	0200 ≤ TOD ≤ 1390	16	SBY	TCA	10ths	9 < TCA	1	16	NEL	WEA		Fog
17	ACY	CLH	ſŧ	206 ≤ CLH < 300	17	NEL	WEA		Fog	į	17	DCA	CIG	n	CIG < 200
18	MDT	CIG	ft	1000 ≤ CIG < 3000	18	PHL	WND	knote	12 < WNDt	į	18				
1 19	MDT	WND	knots	5 < WND* = 12	19						30				
20	PHL	CIG	ft	1000 ≤ CIG < 3000	20					ĺ	20				
21					21					ļ	21				,
22					22					Î	22				
23					23						23				,
21					24						24				
23					25						23				
26					26						26				
27					27	į				1	27				
24	]				28						28				
.:9	<u> </u>		L		29					Ĺ	29				

\*NYE through E. †ESE through S. †SSW through WSW. \*NNE through E. †ESE through S. ISSW through WSW.

th E. INNE through E. th S. tese through S. th Wsw. 155W through W7W.

# TABLE B-32 MDA SELECTED PREDICTORS FOR ACY VIS

(a) 3-hr forecast

(b) 5-hr forecast

(c) 7-hr forecast

Order	Sta	Elem	Unit	Limits	Order	92	Elem	Unit	Limits	Γ	<b>Grder</b>	Sta	EŁ:m	Unit	Limits
1	ACY	vis	mi	3 ≤ VIS	1	MIY	WEA		Fog		1	ACY	WEA		Fog
2	ACY	VIS	mì	VIS < 0.5	2	ACY	CIG	я	CTG < 200		2	DCA	WEA		Fog
3	MIV	WEA		Fog	3	DCA	WEA		Fog		3		TOD	br	0200 ≤ TOD ≤ 1300
4	MIV	vis	mi	VIS < 0.5	4	ACY	RLH	ጀ	94 < RLH	ı	4	MDT	WEA		None
5	ACY	VIS	mi	0.5 ≤ VIS < 1	5	NEL	yıs	ខារិ	3 c VIS	1	5	ACY	TCA	10ths	9 < TCA
6	SBY	vis	mi	3 ≠ VIS	6		TOD	hr	0200 ≤ TOD ≤ 1300	١	6	MDT	WEA		Snow
7	ORF	vis	mi	VIS < 0.5	7	DCA	WEA		Rain	1	7	DCA	WEA		Rain
8	MDT	WEA.		None	8	MDT	WEA		Snow	1	8	ACY	RLH	٢	94 < RLII
9	ACY	CLH	ft	Cru = 0	9	ACY	vis	mi	0.5 ≤ VIS < 1	- 1	9				
10	NEL	VIS	mi	3 ≤ VIS	10	ACY	vis	mi	VIS < 0.5	-	10				
11	MDT	WEA		Snow	11					ĺ	11				
12		TOD	hr	0200 ≤ TOĐ ≤ 1300	12						12				
13	DCA	WEA		Fog	13						13				
14					14					- }	14				
15		<u>.</u> [	!	]	15						15				
16					16						16				
17					27		į		Į.	ļ	17			ļ	
18					18	1					18				
19	Ì				19						19			•	
دخه (				Ì	20	Í				Į	20				
<i>2</i> 1					21						21				
22					22						22				
23					23	I			1	- 1	23			Ì	
24					24	1			1	Į	24				
25					25					- [	25				Į
36					26				İ		26			i	1
±7					27					I	27				
25							Į			Ì	28			Į	
وبي					29	1				- [	29	1		-	

\*NNE through E. tESE through S. ISSW through WSW.

\*NNE through E. †ESE through S. †SSW through WSW. \*NNS through E. †ESE through S. †SSW through WSW.

### TABLE B-33 MDA SELECTED PREDICTORS FOR IDL CIG

(a) 2-hr forecast

(b) 3-hr forecast

		(4, 2	-iii ioice		_					
Order	Sta	Eleni	Unit	Limita	Į	Order	Sta	Elem	Unit	Limits
1	IDL	CIG	ſt	3000 = CIG	ſ	ı	IDL	CIG	ft	3060 = CIG
2	IDL	CIG	ft	1000 ≤ CIG < 3000	, <b>}</b>	2 j	ipr	CIG	n	1000 ≤ CIG < 3000
3 .	IDL	CIG	ft	50°) ≤ C(G < 1000	.	3	MDT	CIC	ſt.	3000 = CIG
4	NEL	CIG	a	3000 ≤ CIG	Ì	4	15r	CIG	ſŧ	500 ≈ CIG < 1000
5	NEL	CIG	ft	CIG < 200		5	NEL	CIG	st	3000 ≤ CIG
6	MDT	CIG	ft	3000 ≤ CIG		6	NEL	CIG	tt	CIG < 200
7	TED	CIG	it	3000 ≤ C1G		7	IDL	RLH	7	92 < RtH
8	NEL	CIG	ft	200 ≤ CIG < 500		8	IDL	WND	knors	12 < WND*
9	IDL	vis	me	VIS < 9.5		9	NEL	CIG	ft	ა06 ≤ CIG < 500
10	TEB	CIG	ft	500 ≤ CIG < 1000		10	BDL	TCA	10ths	9 < TCA
11	BDL	CIG	ft	1000 ≤ CIG < 3000		11	NEL	WEA		Rain
12	TEB	WEA		ivain		12	មារ	CIG	a	CIG < 200
13	SBY	vis	mi	3 ≤ VIS	1	13	TEB	CIG	fi (	3000 = CIG
14	IDI.	RLH	4	92 < RLH		14	NEL	WEV		Drizzle
15	IDL	WND	knots	12 < WND*		15	TEB	CIG	ft	500 = ClG - 1000
16	IDL	WND	knots	5 < WND* ≤ 12		16	IDL	WND	knots	5 < WND* \$ 12
17	NEL	WND	Inots	3 < WND† ≤ 12		17	FOK	CIG	n	CfG < 200
18	IDL	.∵EA		Drizzle	}	18	BDL	CIG	a	1000 = CIG = 3000
19	MDT	WEA	1	Fog		19	FOK	МХD	knots	12 < WNDt
20	FOK	CIG	a	3000 ± CIG		20	рVD	WEA	1	Decreie
21					1	21		}	Ì	
22	1	i				22				
23	}	1				23		ĺ		
24						24	ł j	•	i	}
25	1				24.	, 25		<b>i</b>	ŀ	
26						_6		1		
27						27		1		
28		1				28	1	Ì	į	}
29			1			29				<u> </u>
	through	- <del>1</del>		<u> </u>		*NNE	through	£.		

\*NNE through E. tESE through S. tSSW .hrough WSW.

\*NNE through &. tESE through S. tSSW through WSW.

### TABLE B-33 MDA SELECTED PREDICTORS FOR IDL CIG

(c) 5-hr'forecust

(d) 7-hr fo, ecost

	,		·····	
Order	Sta	Elem	Unit	Limits
1	IDL	CIG	ft	3900 ≤ CIG
j 2	MDT	CiG	ft	3000 ≤ CIG
3	IDL	CIG	ft	1000 ≤ CĩG < 3000
4	NEL	CIG	fı	3000 ≤ CIG
5	เอเ	CIG	í)	500 ≤ CIG < 1000
6	IUL	סיגעי	knots	12 < WND*
7	FOK	TCA	19ths	9 < TCA
8	NEL	RLH	7	93 < RLH
9	BGM	WND	knots	12 < WND1
10	RGM	WND	knot.	5 < WNDt = 12
11	NEL	CIG	ft	CIG < 200
12	MDT	N E.1		Rain
13	MDT	CIG	ft	CIG - 200
1-1	MDT	CIG	ft	500 ≈ CIG < 1e00
15		TOD	hr	0260 ≤ TOD ≤ 1300
16	MDT	WEA		Snow
17	BDL	CIG	a	1000 ≤ CIG - 3000
18	IDL	WND	knots	5 < WND• = 12
19	NEL	CIG	ft	200 = CIG < 500
26				
21				
22				
2.3				
23				
25	į			
26				
٠7	1	ļ		
25				
29				

			(2) 1-11	. 10,660	
	Order	Sta	Elein	Unii	Umlis
Į	1	NEL	CIG	٤٠	3009 ₹ CIC
١	2	MDT	ÇIG	ñ	3000 ≤ CIG
Į	3	IDL	CIG	ft	3900 ≤ CIG
I	4	เอเ	cie	ft	1000 ~ CIC < 3000
١	5	MDT	WEA		Rain
Ì	6	ВСМ	WND	knets	12 < WND1
I	7	BGM	WND	knots	5 < WNOt = 12
۱	8	IPL	WND	knots	12 < WND*
	9	IDI.	WND	knets	5 < WND* = 12
l	20	BDL	TCA	10ths	9 < YCA
1	11		TOD	ðr.	0206 × TOD ≤ 1360
l	12	IDL	CIC	ft	220 a CIG < 500
١	13	MDT	WE/		Fox
	14	BGM	WKD	knots	5 < WND* ≤ 12
l	15	NEL	vis	mi	VIS < 0.2
ì	16	NEL	WEA		Drizzie
١	17				
J	18				
1	19				
į	20				
l	21				
	2.3				
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1					
	25				
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	27				
ļ	28				
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\*NNE through E. †ESE through S. 188W through WSW.

\*NNE through E. †ESE through S. †SSW through WSW.

### TABLE B-34 MDA SELECTED PREDICTORS FOR IDL VIS

(a) 2-hr forecast

(b) 3-hr forecast

Order	Sta	Elem	Unit	Limits
1	IDL	vis	mi	3 ≤ VIS
2	IDL	vis	mi	VIS < 0.5
3	· NE'.	CIG	ít	CIG < 200
4	IDL	VIS	mi	2 ≤ VIS < 3
5	IDL	RLH	7	92 < RLH
6	NEL	VIS	mi	3 ≤ VIS
7	тев	VIS	mi	VIS < 0.5
8	1DL	vis	mi	0.5 ≤ VIS < 1
9	IDL	CIG	ſŧ	200 ≤ CIG < 500
10	NEL	vis	mi	VIS < 0.5
11	IDL	WEA		Snow
12	MDT	vis	mi	VIS < 0.5
13	IDL	WEA		Smoke
14	TEB	vis	mi	0.5 ≤ VIS < 1
15	ALB	CIG	ft	CIG < 200
16	IDL	WEA		Fog
17				
18				
19				
20			}	
21		ļ		
22		}		
23		}		
24				
25			ļ	
36				
27	<b>,</b>	į		
28				
			<u> </u>	<u> </u>

Order	Sta	Elem	Unit	Limits
1	IDL	VIS	mi	3 ≤ VIS
2	NEL	CIG	ft	CIG < 200
3	IDL	RLH	7e	92 < RLH
1	IDL	vis	mi	VIS < 0.5
5	IDL	VIS	mi	0.5 ≤ VIS < 1
6	MDT	vis	mi	3 ≤ VIS
7	NEL	WEA		Snow
8	IDL	CIG	ſŧ	200 ≤ CIG < 500
9	гок	vis	mí	VIS < 0.5
10	MDT	vis	mi	VIS < 0.5
11	IDL	WEA		None
17	TEB	CIG	ſŧ	CIG < 200
13	NEL	WEA		Freezing Rain
14	ļ	İ		
15		İ	ļ	
16		ļ		ļ
17	1			
18	1			
19	1			
20				
21		1		
22	1			
23				
24		1		
25		1		
26				
27		1		
28				
29	1	ı	1	1

\*NNE through E. †ESE through S. †SSW through WSW.

\*NNE through E. †ESE through S. 188W through WSW.

## TABLE B-34 MDA SELECTED PREDICTORS FOR IDL VIS

Order

Sta

(c) 5-hr forecast

(d) 7-hr forecast

Unit

Limits

Elem

Order	Sta	Elem	Unit	Limits
1	IDL	RLH	%	92 < RLH
2	IDL	vis	mi	3 ≤ VIS
3	NEL	CIG	ft	CIG < 200
4	MDT	vis	mi	3 ≤ VIS
5	MDT	WEA		Snow
6	NEL	WEA		Freezing Rain
7	MDT	vis	mi	VIS < C.5
8	1DL	vis	mi	VIS < 0.5
9	IDL	CIG	ft	200 ≤ CIG < 500
10	TEB	WEA		Smoke
11				
12				
13				
14				
15				
16				
17				
18				
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24				
25				
50				
27				
28				
29				

	1	IDL	RLH	%	92 < RLH
	2	MUT	VIS	mi	3 ≤ VIS
ĺ	3	NEL	VIS	mi	VIS < 0.5
1	4	IDL	CIG	ſŧ	200 ≤ CIG < 500
	5	IDL	WEA		None
Ì	6	MDT	VIS	mi	VIS < 0.5
ł	7	NEL	vis	mi	0.5 ≤ VIS < 1
	8				
	9				
	10				
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	12				:
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	22				
	2.3	Ì			
1	24				
	25				
1	26			Ì	
1	27				
	28		1		
	29	1			

\*NNE through E. †ESE through S. †SSW through WSW.

\*NNE through E. TESE through S ISSW through WSW.

### TABLE B-35 MDA SELECTED PREDICTORS FOR WRI CIG

(a) 2-hr forecast

(b) 4-hr forecast

(c) 6-hr forecast

		(4) ==:			_			(-,	1-111101					147	-111 /9100	
Order	Sta	Elem	Unit	Limits		Order	Sta	Elem	Unit	f.imíts		Order	Sta	Elem	Unit	Limits
1	WRI	CiC	ft	5000 ≤ CIG	Γ	1	PHL	CIG	ít	5000 - CIG		1	PHL	CIG	ft	2000 ≈ CiC
2	WRI	cic	ſŧ	7200 ÷ ClC < 2000	١	2	PHL	CIG	ſŧ	1500 - CIG < 5000		2	DCA	RLH	7	98 < RLH
3	wru	CIG	ſŧ	500 ± CiG < 1500	1	3	EWR	TCA	10ths	9 < 1CA		3	EWR	TCA	10ths	9 < TCA
4	PHL	CIG	ß	5000 ± €1G	١	4	DCA	RLH	,	98 - RLH		4	PHL	CIG	ft	1500 ≤ CIG < 5000
3	wri	CIG	ſŧ	CIG < 200		5	NEL	WEA		Fog		5	DCA	CIG	ft	5000 = C1G
6	PHL	CIG	ft	1500 5 CIG < 5000	1	6	Witt	CIG	ſŧ	500 - CIG < 1500		6	PHL	WEA		Rain
7	EWR	cic	ſŧ	5000 s CIG	-	7	PHL	WEA		Rain		1	ABE	CIG	ſî	3000 ± CIG
8	PHL	WEA		Rain	-	ฮ	ABE	CIG	ſŧ	5000 ± CIG		ឥ		тоо	hr	2200 ± TOD ≤ 1300
9	ACY	cie	U	500 ÷ CIG < 1500		9	<b>NCY</b>	CIG	ſŧ	CIG < 200		9	NE I.	W.ND	knots	5 < WND* * 12
10	VCA	CIG	ſt	200 ± CIG < 500	1	10	NEL	WND	knots	5 < WND* = 12		10	NEI	WEA		Fog
11 .	ACY	CIG	lt	CIG < 200	ĺ	11	DCA	CIG	ſŧ	5000 - CIG		11	<b>IPT</b>	TCA	10ths	9 < TCA
12	ABE	TCA	10ths	9 < TCA	Ì	12	WRI	CIG	R	дини • CIQ		12	WRI	WND	knots	12 < WYD*
13	NEL	CIG	ſŧ	5000 £ CIG	ĺ	13	WRI	CIG	ti.	1500 - CIG < 5000		13	DCA	WEA		Rain
24	WRI	RLH		92 < RLH	- [	14		COT	hr	6200 - TOD - 1300		11	ABE	WND	knots	12 < WNDt
15	KEL	ere :	ĸ	1300 = CIG < 5000	-	15	7CA	CIG	£ 31	500 ° CIG < 1500		15	WRI	W.Y.D	knots	5 < WND* : 12
16	ABE	CIG	a	500 ± CIG < 1500	١	16	WRI	WXD	knots	12 < WND*		16	ACY	WEA	Ì	Fog
17	NEL	CIG	ft .	500 = ClG < 1500	ì	17	PHL	CIG	ſŧ	500 - CIG < 1500		17	NEL	CIG	ft.	300 ≤ CIG < 15c7
18	NEL	WND	knots	5 < WND• ± 12	ì	1×	7CA	CIG	a	200 · CIG < 500		18	ORF	RIH	7	91 < RLH
19	PHL	CIG	U	CIG < 200	-	14	TTI	TCA	10th	9 < TC.\	i	19				į
20	ABE	CIG	ſŧ	5000 - CIG	۱	20	DCA	WEA		Rain		20	İ		<u> </u>	
21	ЛСЧ	WEA		Rain	1	J1	ABF	CIG	R	1500 - CIG 5000		21	ĺ			
22		ТОО	hr	0200 + TOD - 1300	-	22		<u> </u>				22		į		
23	DCA	RLII		* · < BLH	- [	23		ĺ				23				
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25					l	25	İ					25		l		1
12	L	L	<u> </u>	لــــــــا	Į	29	L	i	L	L	J	29	L	L	L	L
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\*NNE through E. TESE through S. ISSN through WSW.

\*NNE through E. †ESE through S. †SSW through WSW.

\*NNE through E fESE through S. ISSW through WSW.

### TABLE B-36 MDA SELECTED PREDICTORS FOR WRI VIS

(a) 2-hr forecast

(b) 4-hr forecast

(c) 6-hr forecasi

Order	Sta	Elem	Unit	Limits	Order	Sta	Elem	Unit	Limits	Ord	r 9:2	Elem	Unit	Limits
1	wri		ra.	5 s VIS	1	WRI	VIS	mi	3 - VIS			VIS	mi	5 × VIS
2	WRI	VIS	mı	3 ± VIS < 5	2	DCA	RLH	~	88 < RLH	2	DC.	RLH	2	88 < RLH
3	WRI	٧IS	m;	1 = VIS < 3	3	wri	RLII	Ċ	92 < RLH	3		TOD	hr	0260 ≤ TOD ≤ 1300
4	PHL		5	88 < RLH	4	PHL	WEA		None	1	PH	WEA	Ì	None
5	<b>\CY</b>	vis	mi	VIS < 0.5	5	ACY	VIS	mi	VIS < 03	5	AB	WEA		None
6	wri	WEA		Nonc	6		TOD	hr	0200 = TOD = 1200	6	AC	WEL		Fog
7	NEL	VIS	mi	VIS < 0.5	7	NEL	vis	mí	5 : VIS	7	DC.	vis	mi	5 ≤ VIS
8	PIIL	VIS	mi	5 ± VIS	н	ABE	WEA		None		DC.	WEA	1	Snow
9	NEL	WEA		Fog	۵	ORF	RLII	<i>~</i>	91 < ALH	9	DC.	RLH	7	64 < RLH = 88
10	NEL	vis	mí	9.3 % VIS < 1	10	PILL	CIG	fr	200 - CIG < 396	10	wR	CIG	æ	CIG < 200
11	ORF	RLH	7	91 < RLH	11	DCA	WEA		None	11	DC.	WEA		Rain
12	NEL	vis	mi	1 ≤ VIS < 3	12	WRI	vis	mí	VIS < 9.5	1:2	NE	L RLH	7	92 < RLH
13	WRI	CIG	ft	CIG < 200	13	ACY	WEA		Fog	1:1	NE	RLH	7	72 < RLH = 92
14	АБЕ	WEA		None	14	WRI	vis	mi	0.5 * ViS < 1	14	AC.	r WEA	Į	Smoke
15		TOD	hr	C200 ≤ TOD ≤ 1300	15	PHL	vis	mi	5 r VIS	1:	-	1		
16	PHL	VIS	mi	VIS < 0.3	16	WRI	WEA	}	None	16				<b>j</b>
17	PVD	WEA		Freezing Rain	17		Į			11		-		
19	WRI	RLH	7	92 < RLE	14	•	į			1,				
19	wri	WEA	İ	Rain 5 owers	19		t Ž			15	1		1	
20					20					21	•		1	ĺ
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\*NNF through E tFSF through 5 1550 through Wow

\*NNF through E. tESE through S. tSSW through WSW.

\*NNE through E TESE through S. ISSW through WSW.

TABLE B-37 MDA SELECTED PREDICTORS FOR OFF CIG

(a) 2-hi force ist

(b) 4-hr forecast

(c) 6-hr forecast

	(a) 2-hi to-ee ist				(b) 4-dr forecast					(c) o-m forecast					
Order	Sta	Elem	Unit	lamits	Order	Sta	Elem	Unit	Limits		Order	Sta	Elem	Unit	Limits
1	OFF	ClG	ſŧ	3000 = CIG	1	OFF	CIG	ft	5000 ≤ CIG		1	OFF	CIG	ít	5000 ≤ CIG
2	OFF	CIG	ft	1500 : CIG - 5000	2	OFF	CIG	ft	1500 < CIG 5000		2	GRI	CIG	ft	5000 > C(G
3	OFF	CIC	ft	CIG < 300	3	GRI	CIG	ft	5600 ± CIG		3	OFF	CiG	ft	1500 ≤ CIG < 5000
4	OFF	C' ,	ıt	300 ≥ CIG < 1300	4	OFF	CIG	ft	CIG \ 300		4	GRI	CIG	ft	1300 ≤ CIC < 5000
5	GRI	CIG	ft	5000 · .1G	5	GRI	CIG	ft	1500 ≤ CIG < 5000	Į	5	OFF	CIG	ft	CIG < 300
6	FS!	CIG	ſŧ	5000 - CIG	6	OFF	CIG	ft	300 5 CIG < 1000		6	FSD	TCA	10ths	9 < TCA
7	GRI	WEA		None	7	FSD	CIG	ft	5000 - CIG		7	SSH	CIG	ft	5000 ≤ C.G
9	DSM	CIG	ſŧ	5000 = CIG	н	SSH	CIG	ft	5000 - CIG		8	HON	CIG	ft	3000 ≥ CIG
9	FSD	CIG	T <sub>2</sub>	CIG < 309	9	DSM	CIG	ft	CIG < 300	Ì	9	DSM	RLH	';	90 < RLH
10	MKC	RLB		35 < RLH	10	OFF	TCA	10ths	9 < TCA		10	SSH	CIG	ft	1500 ≤ CIG < 5000
1.	OFF	rca .	10ths	9 . TCA	11	SSH	CIG	ft	1500 5 CIG < 5000		11	FSD	WEA		Fog
12	GRI	cie	íŧ	1500 1 ClG < 5000	12	DSM	CIG	ft	5000 ≤ CIG		12	OFF	TÇA	10ths	9 < TCA
13	DSM	cio	n	CIG < 300	13	FSD	CIG	ft	CIG < 300		13		TOD	hr	0200 ≤ TOD < 1300
14	OFF	W.A		Prizzle	14	OFF	vis	mi	5 ≤ VIS	]	14	GRI	RLH	7	88 < RLH
โง	SSH	CIG	R	3000 ≤ CIG	15	GRI	CIG	ft	1000 ≤ CIG < 1500		15	SGF	WND	knots	12 < WND†
16	OFF	VIS	lu r	5 · VIS	16	FSD	CIG	ft	1500 ≤ CIG < 5000		16	OFF	vis	mi	5 ≤ VIS
17	rsd	CIG	n	300 s CIG < 1000	17	SSH	GIG	a	CIG < 300		17	DSM	CIG	ft	5000 ≤ CIG
14				]	18	SGF	WND	knots	12 < WND†		18	GRI	WEA		Drızzle
19					19						19	ļ			
20					20						20				
21					21		İ				21		}		
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					20						29	l		<u> </u>	<u> </u>

\*\* \* 1 through f rt St. (brough S free \* through WSW

\*NNE through F. 1ESF through S 1SSW through WSW.

\*NNF through c. tESL through S tSSW through WSW.

### TABLE B-38 MDA SELECTED PREDICTORS FOR OFF VIS

(a) 2-hr forecast

(b) 4-hr forecast

(c) 6-hi torecast

		(8) 2-111						-nr tore				(- <i>)</i> -	m torec:	
Order	Sta	Elem	Unit	Limits	Order	Sta	Elem	Unit	Linits	Order	Sta	Elem	Unit	Limita
1	OFF	vis	mi	5 ≤ VIS	1	OFF	VIS	ml	5 ≤ VIS	1	OFF	vis	mi	5 ≤ VIS
2	OFF	vis	mi	VIS < 0.5	2	OFF	VIS	mi	3 ≤ VIS < 5	2	GRI	vis	mı	5 ≤ VIS
3	OFF	vis	mi	3 ≤ VIS < 5	3	OFF	vis	mi	1 ≤ VIS < 3	3	OFF	CIG	ft	C1G < 300
4	GRI	vis	mi	5 ≤ VIS	4	GRI	vis	mi	5 ≤ VIS	4	SSH	vis	mi	5 ± VIS
5	OFF	vis	mì	0.5 > VIS < 1	5	SSH	vis	ខារ	5 ≾ VIS	5	FSD	vis	mi	5 ≤ VIS
6	OFF	WEA		None	6	OFF	WEA		Fog	6	LBF	WEA		Snow
7	FSD	CIG	ft	CIG < 300	7	GRI	WEA		Snow	7	DSM	WLA		Fog
8	SSH	VIS	.ni	5 < VIS	8	FSD	vis	mi	S ≤ VIS	8	OFF	WEA		Freezing rain
9	OFF	CIG	ft	CIG < 300	9	DSM	CIG	ft	CIG < 300	9	GRI	WEA		Drizzle
10	HON	vis	mı	5 ≤ VIS	10	OFF	WEA		Freezing Rain	10	GRI	Vis	នារ	VIS < 0.5
11	OFF	WEA		Fog	11	OFF	vis	mi	VIS < 0.5	n	SSH	CIG	ft	CIG < 300
12	MLI	CIG	ft	CIG < 300	12	MKC	vis	mi	VIS < 0.5	12	GRI	Vis	ıni	0.5 ≤ VIS < 1
13	GRI	vis	mi	0.5 ≤ VIS < 1	13	OFF	RLH	q,	87 < RLH	13	OFF	VIS	mi	3 ≤ VIS < 5
14	DSM	vis	mi	0.5 ≤ VIS < 1	14	FSD	CIG	ft	CIG < 300	14	GRI	WEA		Rain
15	SGF	vis	mi	0.5 ≤ VIS < 1	15	GRI	vis	mi	3 ≤ VIS < 5	15	мкс	CIG	ft	300 ≤ CIG < 1000
16	FSD	VIS	ສາເ	VIS - 0.5	16					16		TOD	hr	0200 ≤ TOD ≤ 1300
17	GRI	WEA		Snow	17		1			17				
18					18		1			18				
19					19	1	ŀ	Ì		19				
20					20	]				20				
21					21					21				,
22					22					22	]			
23					23			l		23				
24					24	1				24				
25					25	1	1			25				
26					26					26				
27			·		27					27				
28			,		28	1	]			28	]			
29					29	<u> </u>	<u> </u>			29	<u> </u>			
ANNIE AT						L								

\*NNE through E. fESE through S. fSSW through WSW.

\*NNE through E. †ESE through S. †SSW through WSW.

\*NNE through E. †ESE through S. †SSW through WSW.

### TABLE B-39 MDA SELECTED PREDICTORS FOR RND CIG

(a) 2-br forecast

(b) 4-hr forecast

(c) 6-hr forecast

		(a) 2-1	r foreca	ıst	(b) 4-hr forecast						(c) 6-hr forecast				
Order	Sta	Elem	Unit	Limits	Order	Sta	Elem	Unit	Limits	Order	Sta	Elem	Unit	Limits	
1	RND	CIG	ft	5000 ≤ CIG	1	RND	CIG	ft	5000 ≤ CIG	1	RND	CIG	ft	5000 ≤ CIG	
2	RND	CIG	ſt	CIG < 200	2	RND	CIG	ft	1500 ± CIG < 5000	2	AUS	WEA		Fog	
3	RND	CIG	ft	1500 ≤ CIG < 5000	3	RND	CIG	ft	400 ≤ CIG < 1500	3	CRP	RLH	Ą	81 < RLH ≤ 95	
4	RND	CIG	ft	200 < CIG < 400	4	CRP	RLH	%	81 < RLH > 95	4	CRP	RLH	Æ	95 · RLH	
5	RND	CTL		Stratus	5	CRP	RLH	%	95 < RLH	5		TOD	hr	0200 ≤ TOD ≤ 130	
6	AUS	CIG	ß.	5000 ≤ CIG	6	AUS	TCA	10ths	9 < TCA	6	AUS	TCA	10ths	9 < TCA	
7	RND	RLH	%	91 < RLH	7	RND	CIG	ft	CIG < 200	7	RND	WEA		Drizzle	
8	RND	RLH	Æ	71 < RLH ≤ 91	8	DLF	CIG	ft	5000 ≤ CIG	3	DLF	CIG	ft	500 ≈ CIG	
9	LRD	CIG	ft	5000 ≤ CIG	9		TOD	hr	0200 ≤ TOD ≤ 1300	9	RND	CIG	ft	CIG - 200	
10	CRP	RLH	36	59 < RLH ≤ 81	10	RND	CTL		Stratus	10	RND	CIG	ſŧ	200 ≤ CIG < 400	
11	CRP	RLH	E	RLH ≤ 59	11	RND	CTL		Stratocumulus	11	ACF	WND	knois	12 < WNDt	
12	AUS	CIG	ſŧ	CIG < 200	12	RND	WEA		Drizzle	12	ACF	TCA	10ths	9 < TCA	
13	RND	СГН	ft	1000 ≤ CLH < 1500	13	ACF	WND	knots	12 < WND†	13	BRO	RLH	ą	RLH ≤ 59	
<b>I</b> 4	AUS	CIG	ft	200 ≤ CIG < 400	14	LRD	CIG	a	5000 ≤ CIG	14	RND	CTL	{	Stratus	
15	RND	WEA		Drizzle	15	AUS	RLH	૧,	91 < RLH	15	LRD	CIG	ft	5000 ≤ CIG	
16	RND	CLH	ft	CLH < 100	16	AUS	CIG	ft	5000 ≤ CIG	16	LRD	WND	knots	12 < WNDt	
17		TOD	hr	0200 ≤ TOD ≤ 1300	17	AUS	CIG	ft	CIG < 200	17	CRP	WEA		Fog	
18	CRP	WEA		Fog	18	LRD	vis	mi	1 ≤ VIS < 3	18	RND	CIG	ft	400 ≤ CIG < 1500	
19	ACF	CIG	ft	5000 ≤ CIG	<b>1</b> 9					19	}	]			
20	EFD	RLH	Ŧ	95 < RLH	20		į			20	ļ		1		
21	ACF	WND	knots	12 < WND†	21					21	j				
22	RND	CLH	ft	600 ≤ CLH < 700	22					22					
23	RND	CLH	ft	200 = CLH < 300	23				i	23					
24					24					24					
25					25					25			ĺ		
26					26		}			26		]		1	
77					'7	1	1			27					
28					28	1	1			28		1			
29					29	<u> </u>		<u></u>		29					
1886		-				brough	-			•					

\*NNF through E. tESF through S. tSSW through WSW.

\*NNE through E. †ESt through S. †SSW through WSW.

\*NNF through E. †ESE through S. ‡SSW through WSW.

### TABLE B-40 MDA SELECTED PREDICTORS FOR RND VIS

(a) 2-hr forecast

(b) 4-hr forecast

(c) 6-hr forecast

		(a) 2-	nr torec			(b) 4-hr lorecast		:ast			(c) 0-n	r iorecas		
Order	Sta	Elem	Unit	Limits	Order	Sta	Elem	Unit	Limits	Order	Sta	Elem	Unit	Limits
1	RND	VIS	mı	5 ≤ VIS	1	RND	WEA		Fog	1	RND	WEA		Fog
2	RND	CTL		Thin fog and fog	2	RND	CIG	ft	CIG < 200	2	RND	WEA		Drizzle
3	RND	RLH	ç	91 < RLH	3	AUS	WEA		None	3	RND	CIG	ft	CIG 200
1 4	RND	vis	mi	3 ≤ VIS < 5	4	RND	CIG	ft	200 - CIG 400	4	CRP	WEA		None
5	RND	VIS	mı	VIS - 0.5	5	LRD	vis	mı	5 ≤ VIS	5	RND	CIG	ft	200 ≤ CIG < 400
6	AUS	CIG	ft	CIG < 200	6	RND	RLH	্ব	91 RLH	6	LRD	vis	mı	5 ≤ VIS
7	LRD	WEA		Fog	7	AUS	CIG	ft	CIG - 200	7	AUS	TCA	10ths	9 < TCA
8	AUS	vis	mi	5 ± VIS	8	DLF	WEA		None	8	DLF	WEA		None
5	RND	CIC	ft	200 ± CIG / 400	9	RND	WEA		Smoke	9		TOD	hr	0200 ≤ TOD ≤ 1300
10	RND	CIG	ſŧ	CIG < 200	10	RND	WEA		Drizzle	10	AUS	RLH	7	91 - RLH
11	RND	WEA		None	11	CRP	WEA		None	11	AUS	RLH	;	71 × RLH ≤ 91
12	หหม	CLH	ft	CLH < 100	12	RND	CLII	ft	300 ≤ CLH 400	12	ACF	vis	mı	0.5 ≤ VIS < 1
13	EFD	CIG	ft	CIG < 200	13	RND	VIS	mi	1 - VIS 3	13	AUS	WEA		Drızzle
14	RND	W.E.A		Thunder, hail	14					14				
15	AUS	vīs	mi	3 ≤ VIS < 5	15					15				
16	ACF	ÇIG	ft	CIG < 200	16				Ì	16			1	
2.7	RND	CLH	ft	200 ≤ CLH 300	17				į	17		{	<b>[</b>	
18	RND	CLH	ft	100 ≤ CLH < 206	18					18				
15	DLF	VIS	mí	0.5 ≤ VIS < 1	19		İ	Ì		19		}		
20	CRP	VIS	mí	3 ≤ VIS . 5	20	ļ			1	20		Ì	İ	
21					21				}	21				
22		·			22	1				22			}	
23					23	}			ĺ	23				
24					24		i			21				
25					25		}			25				
26					26	]	}		{	26			1	
27					27				İ	27				
28	1				28		Ì			24				
.9					29	<u> </u>	L	L		29	J	<u></u>	<u> </u>	<u>L</u>

\*NNE through E. †ESE through S. 188W through WSW.

\*NNE through E. †ESE through S. 1SSW through WSW.

'NNE through E. †ESE through S 188W through WSW.

#### TABLE B-41 MDA SELECTED PREDICTORS FOR DCA CIG

(a) 2-br ferecast

(b) 3-hr forecast

	******		(2)	i i-ar (e)	recast
1	Order	Sta	Elem	Unit	Limits
	1	DCA	C16	ft	3600 ~ C!G
į	2	DCA	CIG	ft	1000 - CIG 5006
Ì	3	000	cis	ft	CIG < 200
7	4	MRB	C:G	e	3000 ± CIG
	5	DCA	cic	f:	200 - CIG < 500
1	6	GVE	HE4		Fog
	7	NHK	ÇiG	ft	CIG < 206
	3	MRB	CIG	ft	CIG - 200
١	9	DCA	A3#		Fog
	10	DCA	CLH	ft	300 - CLH 100
l	il	GVE	CIG	ft	3000 - GIG
ĺ	12	NHK	CIG	ft	200 ≤ CIG 506
l	13	ANP	CIG	ft	3000 - CIC
l	14	ROA	RLH		90 - RL)
	15	ACY	CIG	ſt	CIG 200
l	16	MRB	CIG	ft	1000 - CIG 3000
	17	GVE	VIS	mı	VI3 : 0.5
	18	DCA	CTL		Stratus
	19	DCA	CLH	f A	200 - CLH ,eo
ĺ	20	GVE	CIG	ft	200 - CIG 500
	21	ANP	WE4		Rain
	22	NHK	CIG	ſŧ	506 · City - 1009
	23	DC 1	CLF	£t .	500 ≤ C!H 500
	24	DCA	CLH	lt .	600 - CIH - 799
	25	[	TOD	nr	0200 · TOD   1.00
	21.	ROY	cic	A	.000 - CiC
	27	9C v	- CLH ∫	tt	2000 CLH 3500
	25		I		
	29				
	*KVP II				

\*NNE through E. †ESE through S. †SSW through WSW.

			~		
	Order	S∕a	Elem	Unit	Limits
į	1	oc v	CIG	ft	5000 * CIG
	2	DC A	CIG	ft	1000 - CIG 3000
ļ	3	ЧRВ	CIG	ft	3000 - CIG
-	4	DCA	CIG	ft	500 CIG < 1000
	5	GVE	WEA		Fog
	6	\HK	CIG	ft	U.G 200
ļ	7	DC A	ClG	j ti	ClG 200
1	•	ROA	n.E?	i	łog
j	9	NHK	cio	] a	30-10 - CH,
۱	10	DC v	W.E. 4		I O <sub>h</sub>
1	11	VIRB	cic	li	1000 - CIG 3000
	12	MRB	CIG	fi fi	500 - CIG 1000
ı	13	DC 1	CLH	ft	500 - CIH 100
ı	14	ORF	RLH		91 81.11
Ì	15	MRB	K.B.W		None
I	16		GOT	hr	0200 - TOD 5 1300
ļ	17	ANP	w.z.d	knots	5 - W ND* 5 12
l	18	NHE	CIG	ft	200 = CIG 500
ĺ	19	VIRB	CIG	tt	CIG 200
l	20	DC A	Cl.H	tt	200 - (111 390
	21	DC \	1111		Rate
	22	DC V	CHI	ít	100a - 111   150a
1	د:	10.1	11 11		Drazz'e
	21	CZc	VIS.	n.ı	3 115
ĺ	25	DCA	CHI	,,	ather ( )
	26	VIRB	1111		Inc.
	27	ROY	cic.	11	initia de la companiona dela companiona della companiona della companiona della companiona
	->	10Т	11/0	knot-	12 4/0
L	.29	IPT	11710	Spots	<u>, 11 &lt; 12                               </u>

\*NNF through F.
tFSF through S
ISSW through WSW.

TABLE B-41
MDA SELECTED PREDICTORS FOR DCA CIG

(c) 5-hr forecast

(d) 7-hr forecast

	(c) 5-hr forecast					(d) 7-hr forecast					
Order	Sta	Elem	Unit	Limits		Order	Sta	Elem	Unit	Limits	
1	DCA	eig	ft	3000 ≤ C!G	ſ	1	DCA	CIG	ft	3 <b>∪00 ≾ CI</b> G	
3	ACE	TVEA		Fog	İ	2	Ru i	CIG	ft	3 <i>⊌</i> 90 ≤ CIG	
3	DCA	CIG	ft	1000 - CIG < 5000	1	3	:kB	CiG	ft	3000 ≈ CIG	
4	MRB	CIG	ū	3000 ≤ C1G	1	4	мнк	CIG	ft	CIG < 200	
5	MRB	CIG	ft	CIG < 200	ł	5		TOD	hr	0200 ≤ TOD ≤ 1300	
6	ORF	RLH	E	91 < RLII		6	ACY	TCA	10ths	9 < TCA	
7	NHK	CIG	ſŧ	CIG - 200		7	ROA	CIG	ft	1000 ≤ CIG < 3000	
8	GVE	CIG	ſſ	3000 ≤ CIG		8	ANP	WND	knots	5 < WND* ≤ 12	
9		TOD	br	0200 ≤ TOD < 1300	l	9	ORF	RLH	Ą	91 < RLH	
10	ANP	WND	knots	5 < WN&* ≤ 12		10	MRB	WEA		Rain	
11	MRB	WEA		None		11	D≎A	CIG	ſŧ	1000 > CIG < 3000	
12	DCA	CLH	ſŧ	CLH < 100		12	ANP	vis	mi	VIS < 0.5	
13	DCA	WEA		Drizzle		13	мав	WEA		Freezing rain	
11	PCA	WEA		Rain		14	MRB	WEA		None	
15	DCA	CIC	ft	500 * CIG < 1000		15	MRB	WEA		Druzzle	
16	GYE	CIG	ft	200 ≤ CIG < 500		16	GVE	WEA		Rain	
17	ANP	TCA	10វេងន	9 < TCA		17	ANP	CIG	ft	CIG < 200	
18	DCA	CLH	ſŧ.	300 ≤ CLH < 400	1	18					
19	IPT	WEA		Freezing rain		19	] i				
20	ROA	CIG	ft	CIG < 200		20					
21	ACY	RLH	7	95 < KL'I		21					
22	ROY	CIG	ſŧ	3000 ≤ CIG		22				Ì	
23						23					
24			; :			24				į	
25						25					
26						26					
27	}					27				İ	
29	ĺ					28					
29	<u> </u>					29			<u>L</u>	<u> </u>	

\*NNE through E. †ESE through S. ‡SSW through WSW. \*NNE through E. †ESE through S. ISSW through WSW.

### TABLE B-42 MDA SELECTED PREDICTORS FOR DCA VIS

(a) 2-hr forecasi

(b) 3-bi forecast

Order	Sta	Elem	Unit	Lamits
1	DCA	Vis	ını	3 : VI>
	DCA	Vis	mi	VIS . 6 5
3	116.3	NIA		l'og
4	DCA	Vis	mı	2 - VIS 1
5	MIK	VIS	mı	VIS 0.5
6	DCA	CIG	p ·	CIG 200
7	DC3	CLII	n	296 * Cl 11 - 196
	MRB	vis	mi	3 + V8
9	MRB	CIC .	ſŧ	CIG 200
10	GVI	7.47/		Shen
11	1c.1.	VIS	31115	VIS 93
12	ACA.	11.1		Freezing rain
1.3	DCA	VI\	3741	03 · VIN ~ 1
11	VIRB	Cit.	£1	200 ° CIG 500
15	NIK	1.17		Drizzle
16	(17)	VIS	m	VIS 9,5
17	DC A	C1.11	fi	100 * CLH 500
1*	GVF	CR	i	CIG 200
19	DCA	SEA		Snoki
29	нох	vis	104	· · Vis
21	DC V	en		thin log and log
2.2	DC 7	Cili	It	300 * CHH 100
2.0	NHK	cio -	ít	CR: 204
21	Niik	W1.V		literzing i en
2 ,				
26				
ಚೌ				
ے د				
**)				

Order	Sia	Elem	Umt	Lamits
1	DC V	VIS	וווי	3 ≈ VIS
3	DCA	CIG	ſŧ	CIG 200
.}	DCA	W F 4		Fog
4	AND	vis	m	VIS 0.5
î	GV⊁	WF A		Snow
6	MRB	cia	it	Cfc+ 300
7	VIRB	CIG	ŧŧ	200 * CIG 500
8	NHK	erg	R	CIG 200
9	NHK	W L A		Snow showers
19	DCA	vis	1333	2 5 VIS - 3
11	ROx	VIS	na	t · vis
12	DC Y	Vis	mı	1 - 415 2
13	NIK	11.11		Freezing zain
iŧ	1X. /	(111	n	560 - CLH 100
15	IX \	CIE,	<b>i</b> t	200 · CIG 500
16	DC V	1.411		Snow shows is
17	DCA.	W1.X		Brizzle
18	DCA	1.47		Smoke
19	ACY	Vis	mı	VIS 0,7
24)	MIK	WEA		Strine
21	MRB	W i \		Snow
3.2	NP	(1)		Snow showers
2.1	AND	Cle	11	ClC 200
21	ROY	CIG	11	CIC 2000
/5	SIRB	¥18	m	3 · VI ·
26				
27				
25				
			Į 2	

\*NN. through !
the f through 8
\$\*SW to rough WSW

'NNE through E.

TESE through S. TSSW through WSW

### TABLE B-42 MDA SELECTED PREDICTORS FOR DCA VIS

(c) 5-hr forecast

(d) 7-hr forecast

Order	Sta	Elem	Unit	Limits
1	DCA	WEA		Fog
2	DCA	VIS	mı	VIS 0.5
3	MRB	Vis	mi	3 ≤ VIS
4	NHK	VIS	mı	VIS 0.5
5	ROA	VIS	mı	3 ≈ VIS
6	MRB	CIG	ſŧ	CIG 200
7	MRB	CIG	ft	200 - CIG 500
8	IXA	WEA		None
9	ACY	WEA		Freezing rain
10	ROA	CIG	ſŧ	CIG 200
11	GVE	WEA		Snow
12	GVI	W E.A		Freezing rain
13	DCA	CL.H	ſŧ	C1.H < 100
14	DCA	CIG	a	200 - CIG 500
15	NHK	vis	mı	1 · VIS 2
16	ACY	WEA	Į	Drizzle
17			ĺ	
18	}		}	
19				
20				
21	l	ĺ	[	
22				ļ
23		}		
21	]			
25		1	1	
26				
27	1			
28		}		
29				

Order	Sta	Elem	Unit	Limits
1	DCA	WEA		Fog
2	NHK	VIS	mi	VIS < 0.5
3	ROA	WEA		Fog
4	DCA	WEA		None
5	ASP	vis	mı	Vis e5
6	GVE	WEA		Freezing ram
7	MRB	WEA		Drazzle
ង	NHK	vis	mı	1 - VIS 2
9			Ì	
10			)	
11	}			
12	l		l	
13	•	]		
11	l			
15		•		
16	}		1	
17			1	
18	1	}	•	
19			1	
20	1	]		
21	1			
22	}	}	]	
23	1	1		
21		}		
25			İ	
26		}		1
27			İ	
25	ł	1		
29				

\*NNE through E. †ESE through S. †SSW through WSW.

\*NNE through E. †ESE through S. †SSW through WSW.

### TABLE B-43 MDA SELECTED PREDICTORS FOR CEF CIG

/~' ?-hr forecast

(b)	3-hr	forecas	1
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Order	233	lem	Unit	Limits
1	CEF	CIG	Įt.	5000 ≤ CIG
2	CEF	CIG	ft	1500 ≤ CIG < 5000
з	CEF	CIG	ft	CIG < 200
4	BDL	CIG	ft	5000 ≤ CIG
5	BDL.	CIG	ft	1500 % ClG < 5000
6	CEF	CIG	ſŧ	200 ≤ CIG < 600
7	ALB	CIG	ſŧ	5000 ≎ CIG
8	1DL	RLH	5 <del>°</del>	92 < RUH
9	BDL	CIG	ft	600 = CIG < 1500
10	IDL	VIS	ហារ	VIS . 0,5
11	BOL	CIG	ſŧ	CIG 200
12	CEF	TC.N	10ths	9 < TC.\
13	ALB	CIG	ft	1500 ° ClG , 5000
14	IDL	CIG	ft	5000 * CIG
15	ALB	WEA		None
16	PVD	WEA		Dri/zle
17				
18				
19				
20				
21				
22				
23	1			
24				
25				
26				
27				
2×				
29				
† ESE	thi ough l through S through V	٠,	_ <del>-</del>	

Order	Sta	Elem	Unit	Limits			
1	BDL	CIG	ſŧ	5000 ≤ CIG			
2	BDL	CIG	ft	1500 ≤ CIG < 5000			
3	CEF	CIG	ft	CIG - 200			
4	CEF	CIG	ſŧ	5000 ≤ CIG			
5	CEF	CIG	n	1300 ≤ CIG < 5000			
6	IDI,	RLH	٠,	92 < RLH			
7	ALB	CIG	ft	5000 ≤ C1G			
8	BDL	CIG	ſŧ	CIG . 200			
9	CEF	CIG	či.	200 ≤ CIG < 600			
10	ID1.	VIS	ກາາ	VIS 0.5			
11	CŁF	TCA	10ths	9 TC.\			
12	ALB	CIG	ſŧ	1560 ≤ CIG < 5000			
<u>)</u> .	101.	CIG	ft	5000 ± CIG			
14	RDL.	cic	ft	200 = CIG < 600			
15	M.B	CIG	ft	CIG 200			
16	AVP	WEA.		None			
17	PVD	CIG	ſŧ	5000 ± CIG			
18	BTV	WND	knots	12 WNDt			
19		TOD	hr	0290 = T()D ≤ 1300			
20	PVD	WEA		Drizzie			
21	CEF	Vis	mı	0,5 : VIS < 1			
22	IDL.	CIG	ſŧ	1500 % CIG = 5000			
23							
21							
25							
26							
.:7		j					
2%		ļ					
29							

\*NNE through E. †ESE through S. †SSW through WSW,

### TABLE B-43 MDA SELECTED PREDICTORS FOR CEF CIG

(c) 4-hr forecast

(d) 6-hr forecast

_				<del>,</del>	
L	Order	Sta	Elem	Unit	Limits
	1	BUL	CIG	ſŧ	3000 ≤ CIG
1	2	BDI.	∩IC	(t	1500 ≤ CIG < 5000
1	3	CET	CIG	ft	CIG - 200
l	4	A!.B	тсл	10ths	9 TCA
١	5	IDI.	кин	;	92 RLH
	6	CEF	210	ft	5000 ≤ CIG
	7	CEF	CIG	ft :	1500 · CIG < 5600
	8	IDI.	CIG	ft	5mi0 · CIG
	9	BDL.	CIG	lt	600 · CIG < 1500
ĺ	10	ALB	CK	ſŧ	5000 - CIG
	11	BDL	VIS	เทา	VIS 0,5
١	12	IDL.	CIG	ſŧ	1500 - CIG 5000
l	13	ıdı.	VIS	mı ·	VIS < 0.5
1	14	AVP	WEA		None
	15	PVU	CIG	ft	5000 - CK
	16	ALB	CIG	ft	1500 = CIG - 5000
	17		TOD	hr	0200 ≤ T(H) ≤ 1300
	18	CEF	CiG	ſŧ	200 - CIG / 600
	19	BTV	WND	knots	12 WNDt
ı	20	BTV	WND	knots	5 WND+ : 12
l	21	CEF	TCA	leths	9 FCA
	22				
ı	23				
1	21				
	25				
İ	26				
	•;				
	28		ļ		
L	29	i			

Order	Sta	Elem	Unit	Limits
1	BDL.	CIG	ft	5000 ≤ CIG
2	BD1.	cic .	ft	1500 ≤ CIG < 5000
3	ALB	TCA	10ths	9 < TCA
4	IDL	CIG	ft	5000 ≤ CIG
5	CEF	CIG	ft	CIG < 200
6	AVP	WEA		None
7	19L	RUII	١.	92 < RLH
н	вту	WND	knots	3 < WNDt = 12
9	CEF	TC.\	10ths	9 c TCA
10	CEF	CIG	ft.	200 ≤ CIG < 600
11	SYR	M.ZD	knots	12 < WNDt
12	PVD	CiG	a ·	3000 ≥ CIG
13		тор	hr	6200 ≤ TOD ≤ 1300
11	SYR	RLH		90 × RLH
15	18 W 21	WND	knots	5 < WND* ≤ 12
16	BTV	WND	knots	12 < WND†
17	ALB	CIG	ft	1500 = CIG < 5000
1×	ALB	cig	ſŧ	5000 ≤ CIG
19				
26				
23				
22				
23				
21				
23				
26	Ì	'		
27				
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49				

\*NNE through E. †ESE through S. †SSW through WSW.

\*NNE Urrough E. †ESE through S. 188W through WSW

# TABLE B-44 MDA SELECTED PREDICTORS FOR CEF VIS

(a) 2-hr forecast

(b) 3-hr forecast

Order	Sta	Elem	Unit	Limits
1	CFF	VIS	mı	5 ≤ VIS
2	CEF	VIS	mı	VIS = 0.5
3	BD).	VIS	mı	5 · VIS
	CEF	VIS	mı	0.5 - VIS 1
,	CET	VIS	mı	1 : VIS 3
6	m.	RLH		92 R111
7	1एस	VIS	mı	VIS 0.5
-	MLB	VIS	mı	5 · VIS
9	BDI	VIS	m	0.5 VIS 4
10	BDI	WFY		Nora
11	BD1.	VIS	mı	1 · VIS
12	1DL	VIS	mı	AIS 0.3
1.3	BDI	WF1	'	Snow
11	CEF	WEA		None
15	ALB	vis	mı	3 × 338 - 5
16	CEF	CIG	ſŧ	200 + CIG 600
17	CEF	CIG	11.	CIG 200
14	CEF	CIG	1t	600 - CIG 1500
19				
20				
21				
2.2				
21				
21				
25				
20				
27				
>				
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		• •		
Order	Sta	Elem	Unit	Lamits
1	CEF	VIS	ការ	5 s CIO
2	CEF	vis	mı	VIS 0.5
3	BDL	vis	mı	5 a VIS
4	CEF	vis	mı	0.5 ≤ VIS 1
5	iot,	RLH		92 RLH
6	BD1.	VIS	mı	VIS - 0.5
7	VLB	vis	mı	5 - VIS
٦ .	BD1	WEA		None
9	CEF	vis	mı	1 · VIS ;
10	1777	WFI		Snow
11	IDI,	VIS	m	VIS 0.5
12	BDL	l <sub>18</sub>	וית	0.5 · VIS 1
1:	101	i		72 RIH · 92
11	MLR	CIG	ít	CIG 200
15	1CY	W ND	knots	5 WND1 + 12
16	ALB	WEA		Freezing Rain
17	CEF	CIG	a	CIG 200
14				
19	Ì	1		
20	1			
21				
22				
23				
21		1		
.5				
24.				
::		)		
25				
		1	1	ļ

\*NNE through E fESE through 8 ISSW through WSW

\*NNE through E. †ESE through S TSSW through WSW.

# TABLE B-44 MDA SELECTED PREDICTORS FOR CEF VIS

(c) 4-hr forecast

(d) 6-hr forecast

				•	
	Order	Sta	Elem	Unit	Limits
	1	BDI.	Vis	mi	5 ≈ Vis
	2	CEF	Vis	mi	5 ≤ VIS
	з.	вы.	Vis	mi	VIS < 0.5
	4	m.	RLII.	4	92 × RLB
,	3	ALB	WEA		None
	6	CEF	vis	mi	VIS 0.5
	7	AVP	WÉA		Snow
Ì	8	m.	R1.10	<i>'</i> .	72 RLH = 92
	9	cia	Vis	mi	0,5 * VIS % 1
	10	1D1,	VIS	mi	vis e,a
	11	BOL.	VEA.	·	None
1	12	not,	MEV		Freezing ram
	13	AVP	vis	mi	ViS 0.5
į	14	ુકારા	ોંગક	mí	a ≋ VIS ≠ 5
	,15	-BDL	WEA 1	-	- Freezing rain
1	16	Ątab	WEA		Fog-
-	-17	ALP	WND	Knota	5 × WNDr = 12
•	i×	AVP	-CKG	≓ft	CIG 200
	19	:	i.	7	
	20				
l	21-	-			
1	_ 33	1	~	:	
	23	-			
١	21	-			
Ì	52				
į	ži!	. 1			
	27				
	<b>#</b> 5				
Į	29				

\*NNE through E. †ESE through S. 188W through WSW.

Order	Stin	Elem	Unit	Limits
1	BDI.	'WEA		None
2	m.	RLII	ć.	92 < RLII
3.	101.	RLH	q	72 < RLH ≤ 92
4	CEF	VIS	mi	5 ⊈ VIS
ន	CEF	VIS	mi	VIS - 0,5
6	AVP	WEAT		Snow
7	AVP	WEA		None
*	≠PDL	VIS	mi	5 · VIS
ŋ	АСТ	dzw	knots	5 . WND† = 12
10	101.	WEA	,	Fog
11	ALB.	TCA	joths	9 TCA
12				
ja	^		'	
-14	,			
15				•
16				
17			İ	
18	- !			
-39		-		
20				٠.
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23				
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20				

\*NNE through E. †ESE through S. †SSW through WSW.

# APPENDIX C CONTINGENCY TABLES OF FORECAST vs OBSERVED

#T-

#### APPENDIX C. CONTINGENCY TABLES OF FORECAST vs OBSERVED

An illustration of the contingency tables presented here is given in Table 2-1 of this supplement. The class limits for the predictand categories are given in Table 2-1 of the main body of the report [7]. The tables are presented simply to complete the evaluation; no discussion of them is given below. However, two cautionary notes are important.

First, a weight function is designed to maximize a specific score, and the forecasts are verified by that score only. The same forecasts may appear highly inaccurate when measured by another score. For example, the Vernon skill score may be quite good on a Vernon-weight-function contingency table, yet the percentage of hits could be considerably less than that obtained by the simple forecast method of always forecasting group 5. There is no inconsistency here. A series of forecasts is perfect in only one way (hitting every forecast), but there is an astronomical number of ways in which forecasts can be incorrect. All verification scores are concerned with measurement of these errors. Different scores measure the errors in different ways, so it should not be too surprising that they sometimes give conflicting results.

Second, it is not proper to reduce the number of classes of a predictand by collapsing a  $5 \times 5$  contingency table to a smaller table by adding the entries in adjacent rows and columns. For example, two classes of low ceiling consisting of less than 200 ft and 200 to less than 500 ft might be collapsed into one class of less than 500 ft by adding the entries in rows 1 and 2 and in columns 1 and 2 of a contingency table. However, it is not valid to do this for any forecast technique producing probability forecasts. The proper procedure is to go back to the probability forecasts and add the probabilities for the two low classes. If  $f_1$ , ...,  $f_5$  are forecast probabilities, then both  $f_1$  and  $f_2$  could be less than  $f_5$ , say, but  $f_1 + f_2$  might be larger. We have found that contingency tables obtained by collapsing may be substantially different from contingency tables obtained by going back to the original probability forecasts.

### VERIFICATION OF 3 HOUR LELLING FURECASTS ATLANTIC CITY, N.J. AIRPORT THE VERIFICANIEN CRITEFION IS THE BRYAN SCORE

		PE	KSIST	ENCE					5	NR 74 C	1141		
			UBSER	ሳያየ						OHSER	vED		
FURE- CASI	1	2	3	4	5	POTAL	FCPE ~ CAST	1	2	3	4	5	TOTAL
1	2	6	3	С	3	14	1	ţ	2	o	0	0	2
2	3	16	4	2	4	31	2	3	16	7	2	6	34
3	1	3	ii	ម	3	26	1	0	11	13	5	9	38
4	1	2	5	12	11	31	4	O	1	6	17	19	43
5	ı	5	4	16	553	579	•	2	2	6	14	540	564
JAIOI	5	12	37	38	574	641	FCTAL	5	32	32	38	574	681
BRYAN S	CORF				o	.31652	82714 5	CORE				d	34322
CLIMAT	DLOGI	CAL E	XPEC.T	ENCY	OF PER	SISTENCE				GROUP	ING		
			OBSER	<b>VE</b> D						OBSER	VED		
FORE- CAST	ı	2	3	4	5	TOTAL	FGRE- CAST	1	2	3	4	5	TOTAL
	2		3	o	3	14	ı	1	3	1			
2	c	12	6	ç.	2	2 C	2	i	2	5	0	1	6
3	ı	7	14	10	5	37	3	0	10	12	6	6	36
4	1	2	5	12	11	31	4	2	12	13	22	157	206
5	1	5	4	16	553	579	5	1	5	1	10	402	419
TOTAL	5	32	32	36	574	681	TOTAL	5	32	32	38	574	681
PRYAN S	CORE				0	• 31049	BRYAN S	CORF				o	. 20304
	LUND	CO at	! MGFN!	CA 93	UGNCSI		bei	ı. f t DI	F 015	. r o 1 m	ru a n. T	ANALY	e 1 c
	•••		DRSER			•				BSER		-MAC I	,,,
FURE- CAST	1	2	3	4	5	TOTAL	FUPE~ CAST	1	2	3	4	5	TOTAL
1	c	0	c	0	c	С	1	Z	7	4	ı	5	19
2	,	22	12	2	7	45	7	U	13	6	ì	1	21
3	0	2	A	5	2	17	3	1	4	13	7	6	<i>1</i> 1
•	7	3	9	25	85	121	4	1	5	7	23	52	K8
5	t	5	3	9	48C	498	5	1	,	2	6	510	522
FOI AL	5	32	32	4,5	574	681	TOTAL	5	32	32		574	6nl
PHYAN SC	.grf				0	. 34747	HEYAN SC	)ei				4	, 3r to j

# VERIFICATION OF 5 HOUR COILING FURECASTS ATLANTIC CITY, N.J. AIRPORT THE VERIFICATION CRITERION IS THE HRYAM SCORE

		PER	SISTE	ACE						BJECT			
		n	BSERV	£0					n	BSERV	ED		
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	ı	2	3	4	5	1914L
1	e	1	?	2	9	14	1	0	1	0	0	0	1
2	1	12	6	5	6	39	?	3	11	8	4	3	29
3	1	3	5	10	5	24	3	ı	8	9	13	10	40
4	ı	4	6	11	9	31	4	9	0	6	16	18	42
5	2	õ	5	25	520	552	5	i	0	2	18	518	539
JATOT	5	20	74	53	549	651	TOTAL	5	20	74	53	549	651
BRYAN S	COP F				c	.73138	BRYAN SC	ORE				0.	29871
CLIMAT	0L0616	CAL E	KPEC TI	ENCY	OF PER	SISIENCE			(	GROUP:	ING		
			DRSEK						(	DBSER	VED		
FORE- CAST	1	2	J	4	5	TOTAL	FORE- CAST	1	2	3	4	3	TOTAL
1	0	ı	1	0	4	6	1	0	1	2	o	8	11
2	1	9	4	2	3	19	2	0	5	6	4	3	16
3	1	6	8	15	13	43	3	0	6	6	5	6	23
4	1	4	ó	11	9	31	4	3	8	10	32	110	163
5	2	0	5	25	52G	552	5	5	0	0	12	422	436
TOTAL	5	20	24	53	549	451	TOTAL	5	20	24	53	549	651
PRYAN S	CORE				d	.23176	ARYAN S	CORF				0	.28318
	1.03.6	, cent	I NG FR	ICY P	ROSNOS	15		(() L T ] P	LE DI	SCRIN	HANIS	I ANALY	·s 15
	20		กดระจ							OBSEF	(13v		
FURE- CAST	i	2		4	5	TOTAL	FORF- CASI	1	,	3	4	5	IATAT
i	o	3	0	G	c	c	1	8	1	2	;	12	18
2	1	13	H	7	15	44	2	0	4	j	2	1	12
3	2	7	14	77	79	129	3	•	7	12	11	5	35
4	С	0	1	4	37	47	4	,	4	7	2 5	89	130
5	7	0	ŧ	15	418	436	5	,	0	,	4	442	455
TOTAL	5	20	74	۴. ۽	544	651	LATOL	٠,	20	74	5	3 549	651
гауал	ל"טאנ ב					0.18983	SHANN	Sur					c, erre

# VERIFICATION OF 7 HOUR CEILING FORECASTS ATLANTIC CITY, M.J. AIRPORT THE VERIFICATION CRITERION IS THE SHYAN NOCORE

		PE	RSIST	FNCE					s	UaJFC	11.41		
			OBSER	VED						085EX	031		
FORE~ CAST	1	2	3	4	5	TOTAL	FCRE- CAST	ì	2	3	4	5	TOTAL
ı	c	1	2	2	10	15	1	5	ī	າ	1	ı	3
2	ì	11	7	3	11	33	2	3	10	12	2	6	33
3	c	4	5	8	8	25	3	0	5	9	10	10	37
4	2	2	ç	10	11	34	4	0	9	11	17	22	50
5	5	3	15	28	518	563	5	Ś	z	6	21	519	553
TOTAL	H	21	js	51	558	676	TGTAL	7	21	\$h	51	558	676
PRYAR S	CORE				d	.19418	HRYAN S	CORE				ı	0.27053
CLIMAT	UFACI	CAL E	xpect	ENCY	OF PER	SISTENCE				GRNUP	IYG		
			OBSER	VED						GUSER	VED		
FORC- CAST	1	2	3	4	5	TOTAL	FORE— Cast	ı	2	3	4	5	TOTAL
:	e	1	2	0	4	7	1	ç	o	0	e	1	1
2	1		•	1	5	21	2	1	3	5	5	9	24
3	O	7	4	7	10	28	3	2	10	14	8	21	55
4	2	3	12	23	142	182	4	3	8	18	26	120	175
5	5	2	14	23	397	438	•	2	0	1	11	407	421
TOTAL	ņ	21	38	51	558	676	TOTAL	ħ	21	38	51	558	676
BRYAN SI	CGRF				0	.18786	HRYAN S	CORF				(	0.25759
	LUYD	CONT	INGEH	CY P9	064021	s	ĸ	IIL I I P	LE DIS	SCRIM	[ 40It]	4RIAL1	rs (s
			ORSEK	<b>Λ</b> Ευ					•	DRSFR	/E0		
FURE- CAST	1	2	3	4	5	TOTAL	CASI	ı	2	3	4	5	TOTAL
i	9	7	1	2	55	67	1	o	3	9	ı	11	12
2	1	7	6	3	21	3*	2	Ó	5	4	2	1	12
1	ŗ	7	6	1	5	25	3	4	6	9	11	7	33
4	3	5	21	"	110	166	4	4	4	21	26	115	175
,	4	э	?	12	367	345	5	4	1	4	11	424	444
FOTAL	ь	21	34	51	<b>,5</b> 6	615	TOTAL	я	?1	3#	51	558	675
HRYAN SO	ORF				Э,	.21603	HANAIL SE	,501				c	-24591

# VERIFICATION OF 3 HOUR VISIBILITY FUPFCASTS ATLANTIC CITY, N.J. AIRPORT THE VERIFICATION CRITERION IS THE BRYAN SCURE

PERSISTENCE

SUBJECTEVE

OBSFRVED										OUSER	VFD		
FORE- CAST	ı	5	3	4	5	TOTAL	FORI CAS		2	3	4	5	TOTAL
1	7	2	2	3	10	24	1	1	0	ŧ	4	0	5
2	0	8	6	3	9	26	2	5	5	4	0	7	22
3	1	3	4	3	6	17	3	4	3	8	2	19	41
4	2	1	0	2	å	11	4	5	4	3	7	18	34
5	3	3	10	24	579	619	5	ı	4	5	17	568	596
TOTAL	13	17	27	35	612	699	របរ	AL 13	17	22	35	612	699
BRYAN S	CORE		-		(	5.24188	BRY	AN SCORE					0.25378
CL IPAT	0F0@10	AL E	XPECT:	ENCY	OF PER	SISTENCE			,	GROUP!	r*:G		
		(	ORSER	VED						DUSERY	/FD		
FORÉ- CAST	1	2	3	4	5	TOTAL	FORE CASI		2	3	4	5	TOTAL
1	7	3	2	3	10	25	1	7	2	3	4	86	76
2	0	6	3	3	6	10	2	c	ž	Đ	2	13	17
3	1	4	3	3		19	3	2		•	*	52	79
4	2	1	4	2	•	10	4	2	3	4	15	127	151
5 .	3	3	10	24	579	619	5	2	2	•	•	360	376
TOTAL	13	17	22	35	612	679	101	ML 13	17	22	35	612	679
BRYAN S	CORE				o	.20784	SRY	AN SCORE					0.28790
1000	, rnwo	CONT	INSEN	CY PR	OGMOS1	s		MULTIP	LE DI:	SC# IM I	[MART	ANALY	rsis
		(	DASERI	/ED					1	0658#1	/FC		
FORE- CAST	1	7	3	4	5	TOTAL	FORE CASI		2	1	4	5	JATOT
1	6	6	7	6	16	41	1		5	4	6	24	49
2	0	0	0	0	0	3	2	e	c	0	0	0	o
3	3	8	5	5	12	33	3	2	6	11	A	24	51
4	4	2	9	51	217	253	4	C	•	3	7	44	58
5	0	1	ı	3	367	372	5	3	2	4	12	520	543
TOTAL	13	17	22	35	612	643	101	M 13	17	22	35	612	699
BRYAN S	CDRE				o	.78447	nRY/	IN SCORE					0.2×044

### VERIFICATION OF 5 MOUNT RISHBELLY FUNCASIS ACCURATE CITY, N.J. AIRPORT THE VERIFICATION OF THE MANAS SOME

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MAN V.

PERSISTENCE

		€	JASER1	150						55.ER	<b>.</b> E.C		
FORE- CAST	i	2	3	4	5	ICTAL	Filia Cas		2	•	•	•	<b>છા</b> ઘ
ŧ	0	2	ı	2	19	22	1	c	c	c	:	ı	1
2	1	3	7	3	13	26	2	3	3	2	3	2	13
3	1	3	3	2	10	16	3	1	2	7	5	13	30
4	c	9		2	10	13	•	. 1	0	4	5	12	22
5	4	4	?	14	357	546	4	. 1	?	4	÷	561	597
FOTAL	6	7	17	22	609	66.5	101	£L 6	1	17	22	609	653
PRYAT S	CORE				o	.09424	887	TA SCOSE				δ	.22087
CL 1*A1	กะอราช	AL E	KPFC II	[¾CY	OF PER	SISIEYCE				SECUE	175		
		1	DESER	<b>15</b> 0						Cases	MEC		
FORE- CAST	1	2	3	4	5	TOTAL	FOI CAS		. Z	3	4	5	TOTAL
1	c	3	3	4	20	36	,		: 6	4	5	30	37
2	c	9	Ç	v	c	٤	:	? 1	:	2	1	14	16
3	2	ø	7	\$	16	35	:		: 1	7	. 5	60	73
4	o	7	2	ı	14	17	•			5	5	95	112
5	4	4	7	14	551	586	•	5 1		1	ŧ	410	423
701 AL	6	7	19	72	629	663	101	IRL 6	, 1	19	22	<b>607</b>	663
BRYAN S	CORE				c	094NG	Äkt	rea SCPAE				C	.07725
	Faxil	COVET	(NGF40	F4 7	OSMUNI	s		est [1	PLF 3	ISC#Į™	[462]	ANALY	\$15
		C	INSFR 1	f- *						JASE4	<b>₹</b> 5		
FGRE- CASI	ı	2	3	4	•	1+3T AL	FCR C35		2	ż	•	5	TOTAL
t	1	1	5	4	30	41	1	1	1	ನ	5	35	4#
2	ċ	3	ð	42	£	•	•	ī	a	0	,	ı	1
5	1	?	•	2	ŧ	14	5		3	Ĭ	•	47	62

13 202

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7 12 22 629

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REYAY SCORE

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# VEHIFICATION OF 7 HD VISINILITY FORECASTS ATLANTIC CITY, N.J. ALREORY THE VERIFICATION CRITERION IS THE HAVAS SCORE

		PEH	\$1511	tu £						SU	F)FC1	l vt		
		G	BSFRV	er						Ú	HSFHV	f D		
FURE- CASI	1	7	•	4	5	1-)1AL		FORF- CAST	1	,	i	4	5	TOTAL
1	o	s	1	o	20	71		i	0	0	ŋ	0	ŧ	i
2	1	3	ר	ţ	15	25		,	?	2	ì	•)	7	1.3
3	?	ı	ł	0	12	-16		1	ì	?	3	2	13	27
4	c	0	э	ç	14	14		4	1	3	1	2	15	22
5	?	3	17	13	546	581		5	6	0	н	10	571	5 >
JATGE	10	γ	19	14	6:-7	657		የበተአレ	10	1	19	14	607	677
BRYAN	SCORE				0.	09860		BRYAN S	ะกฯะ				0.	16645
Cr In	70L061C	AL E	(PECTI	ENCY	GF PFR:	SISTENCE				(	SKOUP	ING		
		C	วชรอล.	/EO						(	THSER	VED.		
FORE- GAST	1	2	3	4	5	TUTAL		FORE- CAST	1	2	3	4	5	JATCT
1	o	i	1	9	8	10		ι	2	ı	7	1	60	71
2	0	Ů	o	0	0	0		7	0	э	O	Ú	7	7
3	3	2	6	1	26	34		3	)	3	5	5	55	68
4	0	1	0	0	27	2 H		4	3	3	6	6	123	141
5	7	3	12	13	546	581		5	2	0	4	?	362	370
TOTAL	10	7	19	14	607	657		*OTAL	10	7	19	14	607	651
BRYAN	SCORE				0	.06347		HRYAN S	C JKF				0	.03250
	LUND	CONT	まれしこか	JY P	ROGNOSI	s			41L I I PI	.E PI	Scale	IHANI	I ANALY	sts
			Juses	Aft.							DASEN	VFD		
FORE- CAST	1	2	•	-	5	JATAL	o,	FORE- CAST	1	,	3	4	5	TOTAL
1	1		۲,	į	3%	4C		ı	7	i	1	2	45	43
٠	ú		2	G	٨	ΰ		5	0	J	9	Ų	O	0
,	0	3	ŧ i	6	204	230		7	1	i	١	4	H B	91
44	1		ŧ	i	43	47		•	4	?	4	,	10	40
*	,			1)	,29	340		1	3	ı	4	3	404	\$15
1, *5.	1/0	7	•		607	657		10141	10	1	19	14	100	5'17
pp y a s	SCORF				(	0.05105		RRYAN	SC OFF				q	)-64-3-4 <b>1</b>

#### VERIFICATION OF 2 HOUR COLLING FUNCASTS BESTOVEN AND COLCUMPTE, MASS. SHE VERIFICATION CHITTRIPM IS THE BRYAN SCORE

		₽F	RSIST	a ACE					\$	UHJEC	3 1 1		
			08568	<b>∀E</b> D						GESEX	yr o		
FORE+ CASE	1	2	,	•	5	10141	FCRE- CAST	ι	?	3	•	5	TOTAL
ı	ñ	•	c	2	?	l S	i	3	2	0	1	ı	7
2	5	٩	5	ı	c	in	7	ii	10	н	Ú	1	30
3	e	7	21	1	3	44	3	۲	A	24	9	3	44
4	С	3	6,	44	35	8 H	4	n	3	1	44	22	. 76
5	4	3	5	ld	455	48 >	ς,	3	1	4	17	466	493
TOTAL	17	24	43	71	495	650	TOTAL	17	24	43	71	475	650
BRYAN S	CORE				,	).464 <b>1</b> 2	BRYAN :	SCOKF				Q	.46152
CLIMATE	nrneti				UF PFR	SISTENCL			(	Sqour	146		
		(	JHSEK	VCL.					(	JBSER'	VED.		
FURE- CAST	1	2	3	4	5	TOTAL	FARE- CAST	1	2	3	4	5	FOTAL
ì	<b>*</b>	3	r	>	2	16	1	9	3	o	2	2	16
2	5	11	7	;	c	23	5	i	7	5	٥	0	13
3	C	5	26	4	3	3.8	3	4	13	10	7	3	57
4	c	5	6	Su	75	86	4	0	1	6	56	48	105
5	3	0	4	15	465	487	5	3	0	7	12	442	459
TOTAL	17	24	43	71	495	450 .	TOTAL	17	24	43	71	495	650
BRYDA SC	DRY				Ç	.51707	PRYAN S	CORE				٥.	49622
	LUND	LGNI	INGEN	CA Ha	1664051	3	u	WE FTP	LE DI	SCK I ™	[NAV]	ANALY:	\$15
		4	NASFR	V£."					(	JBSER	VFD		
FORE- CAST	1	2	3	4	5	TOTAL	FORF- CASI	1	2	3	4	5	TOTAL
ı	r	J	٠,		¢	r	1	10	3	a	2	z	17
į	11	11	ז	è	2	3.3	7	4	15	7	Ģ	c	26
\$	6	1	27	,	3	44	3	ა	•	26	6	1	37
4	¢	4,	10	43	100	167	4		2	4	52	66	129
10	4	,	1	š	390	404	S	3	0	ì	11	424	441
	17			71									

REYAY SCEPT

0.444

6.4177

ARYA" SC RE

## VERIFICATION OF 3 HOUR CEILING FORECASTS WESTOVER AFB, CHICOPEE, MASS. THE VERIFICATION CRITERION IS THE BRYAN SCORE

#### PERSISTENCE

FORE- CASI	1	2	3	4	5	TOTAL
1	9	3	0	2	2	16
2	4	11	8	1	0	24
3	G	8	27	3	4	44
4	o Î	4	6	49	24	83
5	3	0	5	16	470	494
TOTAL	16	26	46	73	500	661

BRYAN SCORE

0.51023

			BSER	/ED					OBSERVED							
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CASY	1	2	3	4	5	FOTAL			
		3	1	2	2	16	1	8	5	3	2	2	20			
2	3	•	1	¢	0	13	?	2	6	1	0	0	9			
3	1	7	29	10	4	5,	3	2	5	15	7	•	37			
4	ð	*	•	42	35	<b>9</b> 6	4	ı	9	20	49	63	142			
5	4	3	6	19	459	491	5	3	1	3	15	431	453			
TOTAL	16	26	44	73	500	461	TOTAL	16	26	46	73	500	461			
BRYAN S	SCORE				0	•45)25	BRYAN S	CO#E				0	.41391			

	LUND CONTINGENCY PPOGNOSIS						**	ULTIPLE	915	CRINI	NANT	ANALY!	15
<b>&gt;</b>		(	esen.	rED.									
FORE- CAST	1	2	3	•	5	TOTAL	FORE- CAST	ı	2	3	4	5	TOTAL
1	0	ø	0	o	0	0	1	5	•	C	2	٥	11
2	13	14	8	3	2	<b>40</b>	2	2	7	3	¢	0	12
3	٥		27	4	4	44	3	1	6	24	10	2	45
4	0	4	10	57	#3	154	4	ŧ	8	13	47	68	140
5	3	Ç	1		511	423	5	4	1	4	14	430	453
TOTAL	16	26	46	73	500	641	TOTAL	16	26	44	73	500	641
BRYAN	SCORE				•	0.4623#	RRYAN S	CORE				0	.42293

# VERTETICATION OF A HUBB CETTING FORECASTS WESTOVER AFH, CHICOPEL, MASS. THE VERTETICATION CMITTERLY IS THE BRYAN SCORE

	PERSISTENCE						SUBJECTIVE						
		0	DSERV	٤n					r	BSERV	EÐ		
FORE- CAST	ı	2	3	••	5	TOTAL	FARE- Casi	ì	2	ŝ	4	5	TOTAL
1	3	?	>	ż	7	16	1	ı	ì	Q	:	2	4
2	1	3	7	ι	2	25	2	3	6	ś.	4	3	50
3	ı	5	24	h	10	48	3	2	10	21	12	3	414
4	i	÷	9	36	29	19	4	n	3	15	19	36	93
5	1	1	9	21	449	447	5	1	1	11	24	453	490
101 AL	7	21	51	79	447	655	FOFAL	7	21	51	<b>?</b> +	497	655
eryan so	CORE				0.	38566	PRYAN	SCURF				0	. 37436
C+ 1935	0.067	ca: e:	( VEC 11	:NEV I	ne pra	STRIENCE				しなけいか	130		
CLIPAN	00001		185FK1							OBSEP	VED		
FORE-							FURE-		2	3	4	5	10TAL
CAST	ì	?	3	4	5	JATHI	CAS!	ì	•	,	•		1912
1	3	2	2	2	7	16	1	3	5	2	1	7	15
2	С	o	0	e	0	3	2	′1	3	4	1	0	9
3	ı	9	20	в	10	48	3	?	Ħ	19	8	11	48
4	2	9	20	42	31	104	4	1	ť	50	54	90	173
5	ı	1	7	27	449	487	4,	1	0	6	15	389	411
TOTAL	1	21	51	71)	497	655	TOTAL	7	21	51	19	497	655
BRYAN S	CORE				d	.36301	МАЧЯН	SCCRE				,	0.36227
	LUNI	CUNI	INGEN	CY PR	:06NOS1	\$		MOLETTP	LF DI	SCRIP	IIVAN	T ANAL	<b>YS</b> 15
			OHSER	VED						OBSER	O3vs		
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	ı	2	3	4	5	TOTAL
1	c	0	0	Ç	o	o	1	4	?	3	2	4	15
2	4	11	9	Ħ	9	41	5	1	2	2	1	1	•
3	1	5	74	ឥ	10	46	1	ı	11	28	9	4	% 3
4	ı	5	12	4C	H 7	145	L	7	>	13	51	64	41
5	t	9	6	23	391	421	5	1	1	5	16	424	447
TOTAL	7	21	91	19	497	655	TOTAL	1	21	51	79	497	655
PRYAL	SCORE					0.3363H	RRYAN	SCORF					0.47484

# VERTIFICATION OF 6 HOUR COLLING FORFOASTS WESTINGER AFM, CHICOPFF, MASS. THE VERTIFICATION CRITERIUM IS THE MAYA'S SOURF

		PERS	ISTE	W E					-	13161			
		OF	3SE × V	t٦					O+	\$ <b>6 # 4</b>	E ()		
FURE- CAST	1	2	3	4	5	TOTAL	F FIRE- CAST	1	į	ì	•	4	tufar
1	n	1	2	4	9	10	į	1	3	ì	¢	ı	3
2	?	2	7	A	6	25	2	?	6	19	ì	1	20
3	. 2	5	19	15	6	41	*	(,	5	10	11	3	19
4	1	7	16	31	32	el 7	4,	1	•	13	*, }	39	101
5	o	3	5	46	44C	494	•	ı	4	4	*1	449	500
TOTAL	5	18	49	104	493	64.3	1011	•	įn	4.8	1.74	441	<i>6</i> 19
BRYAN SC	GRE				0	.76264	HRYAN S	CORE				0.	39913
				TUCY	UE NEB	STSTENCE			(	SROUP	₹NG		
CLIEAI	ar ne r		)BSFR		<b>III</b> V · A	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			(	วหรียี่	ven		
FORE- CAST	1	2	3	4	5	POTAL	FCRE~ GAST	ı	2	3	4	5	TOTAL
	_				•	1	1	,	J	1	G	2	3
1	0	0	0	1	0		?		ı		3	6	15
2	0	0	0	0	2	19	3	c,	3	, 4	ŧ,	4	27
3	,	3	•	53	51	155	4	,	12	26	63	112	215
4	3	12	36 5	46	440	494	5	ı	2	5	32	369	409
5 TOTAL	c 5	18	49	104	493	669	FOTAL	5	14	49	104	>3	669
PRYAN S	SCORE				:	0.32537	BRYAN	SI,ORE				Ó	).32046
	LUNE	con!	I INGE	NCY F	RUGNOS	15		MJLTI	PLF D	ISC41	MAY 1 P	T AMAL	1515
	•			RVED						OBSE	C3vq		
FORE- CASI	1	2	,		, 5	TOTAL	FARE - CAST	1	2	3	4	. ,	101
ı	o	0		) '		C	1	o	1	2	. 1	3	7
2	2				3 4	14	2	2	ι	2	?	s 1	9
3	2			5 1	, 9	60	.,	7	3	20	;	, 2	33
4	1					205	4	:	10	5	3 6	9 88	1.91
5	G				5 36C	170	5	(	; ;	;	2 2	5 399	429
TOTAL	4			; <u>1</u> ^	4 493	669	TOTAL	•	. 16	•	4 10	4 491	<b>66</b> 3
RPYAN	SCCHI					0.34302	• a f KH	/( i3#	r				3,4117

## VERIFICATION OF 2 HOLD VISIMILITY FORECASTS MESTOVEN AFH. CHILIPPER, MASS. THE VERIFICATION CRITERIOLES FHE BRYAN SCERF

PERSISTE VCE						SUNJECTIVE							
		r	DUSER V	11.0					()	95E×1	· 1		
FURE- CAST	ı	2	3	4	5	FOTAL	FCRF- CASE	1	2	3	4	5	FIFAL
t	12	2	7	2	e	14	t	4	,	i	4	0	1
2	2	5	7	ı	c	15	2	15	3	•	¢	0	27
3		4	20	5	4	41	3	10	4	35	12	8	71
4	1	ι	14	15	14	45	ů	Q	Ü	7	24	24	57
•	ı	2	11	21	522	563	•	0	J	5	14	506	525
TOTAL	24	14	54	50	540	643	f"FAL	24	1~	54	50	540	642
MB 4 AV S	ርባዩና				0.	, 404 14	2 улунн	1503				0.	48910
CL 1741	DL0610	CAL E	XPECT!	ENCY	OF PFR	51 <i>5</i> 16.406			(	SKOUP	146		
			በሐፍቂዛ						1	ObSER	VED		
FORE- CAST	1	2	3	4	5	TOTAL	FCHF- CAST	ı	2	3	4	5	TOTAL
1	5	ı	•	1	c	,	t	16	4	4	2	G	26
2	Ą	4	6	1	0	19	3	J	1	2	ý	6	4
3	3	6	21	6	4	46	3	ż	1	26	ır	9	58
4	1	1	14	15	14	45	4	2	Ş	20	25	38	40
s	i	2	11	27	522	563	5	e	э	2	9	493	504
1014L	24-	14	54	50	540	68?	INTAL	24	14	54	50	540	682
HRYAN	SCORE				c	. 35796	РАЧЯН	SCURF				c	.53860
	F0.10	נייט	TNOF4	iĈY P	เบิร์สตรา	\$	•	MIIF	LF bl	<b>41</b> 402	INARI	ANALY	\$15
			CASER	AEU						GBSER	VEO		
FGRF- CASI	ı	,	3	4	5	FCTAL	EU4E- 5481	i	,	3	4	5	TOTAL
ı	5	~	•,	,	G	;	l	17	4	7	3	o	31
2	24	14	53	45	141	280	?	2	•	3	,,	o	4
3	o	)	Ģ	٠,	ί		3	•	,	31	4	2	47
4		9	3	v	c	•	4	ť	1	11	37	80	129
•,	o	١	ı	,	349	400	5	0	)	,	6	458	465
HC FAL	24	14	54	٠,	546	647	TAL	. 4	14	54	50	540	645
644V.	५८ स				,		<del>Рк</del> УДЪ	٠.					

# VERTICATION OF 3 HOUR VISINICITY FORECASTS WISTIVER BEN, CHICOPE, MASS. THE VERTICATION CRITERION IS THE DRYAN SCORE

		•				
		PEH	21216	•Ct		
		n	ASFRV	۴n		
FGRE- CAST	1	5	3	4	5	TOTAL
l	16	4	>	ė	0	24
2	5	4	3	ę	0	12
3	4	5	30	1	3	4 >
4	ŋ	G	10	>4	13	41
5	¢	i	6	17	525	>51
TOTAL	25	14	51	<b>4</b> 4	541	67.3

BRYAN SCORE

0.5744#

CLIMAT	1,0610	AL EX	PFCTF	NO Y D	e pers	ISTENCE			_	R(RIF) MSERS			
		0	RSFRV	£Đ					-,	r 36 ~ *	.,		
FORE- CAST	1	2	4	4	,	TOTAL	CAST	1	3	¥	4	5	JATET
	1	0	3	2	9	15	1	11	2	3	7	c	16
1					8	ų	2	2	•	3	4	1	14
2	o	O	1	C			1	1	5	2.2	5	8	41
3	0	1	0	ì	15	17	·			15	2 to	85	136
4	2	o	0	1	13	16	4	4	3	19			
	22	13	47	44	496	622	5	1	3	3	9	447	464
5 101AL	25	14	51		541	674	TOTAL	25	14	51	48	541	679
PAYAN!	CORF				-0	.01668	HRYAY '	scnaf				Ċ	. 462 12

	LUND	caut t	NOENC	A DKI	ารพถร	15	witter a contrate particle								
	CUND		BSERV						a	45EH4	ξŮ				
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	1	7	•	•	5	TOTAL		
		9	0	ù	0	n	1	3	3	•	3	ı	18		
i -	C		,	3	0	12	2	5	3	ż	0	¢.	4		
2	15	7		0	3	21	1	13	ě	20	5	5	53		
3	7	3	9			193	4	2	,	22	21	48	143		
4	7	5	12		116	411	5	c	3		11	447	462		
5 TOTAL	1 25	14	3 51		420 541	679	fiital	.35	14	*1	<b>"</b> 8	541	939		
04 <b>V</b> 4A	ccar					0.355/3	PAPPA	2CHE C				÷	, 4,5x45		

# VERIFICATION OF 4 HOUR VISIBILITY FORECASTS WESTOVER AFF. CHICOPPE. MASS. THE VERIFICATION CRITICATON IS THE BRYAN SCORE

PERSISTENCE

SUNJECTIVE

OBSERVED						ORSERVED							
FORE- CAST	1	2	5	4	5	TOTAL	FURE- CAST	ì	2	3	4	5	TOTAL
1	5	2	10	2	4	23	i	3	1	1	o	0	5
2	1	?	5	0	4	12	2	1	1	2	1	4	9
3	2	6	22	7	y	46	3	4	7	23	7	11	52
4	2	2	12	12	18	46	4	3	3	23	15	26	70
5	2	1	12	22	506	545	5	1	1	12	20	502	5 3 6
T TAL	12	13	61	43	543	672	TOTAL	12	13	61	43	543	612
BRYAN S	CORE				0	. 32436	HKYAN	SCORE				c	. 33053
CLIPAT	9L0G10	(AL E)	KPECTI	ENCY	OF PERS	SISTENCE			(	GKOUP	ING		
		ſ	OBSER\	<b>VFD</b>					1	DBSER	VED		
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	ı	:	3	4	5	TOTAL
1	5	ì	2	0	1	9	1	4	3	8	1	5	21
2	0	n	9	0	0	¢	2	7	1	7	0	2	12
3	3	6	16	4	6	35	3	4	5	23	11	19	62
4	2	5	31	17	28	83	4	1	3	17	24	139	186
5	2	ı	12	22	508	545	5	1	1	6	5	376	391
TOTAL	12	13	61	43	543	672	TOTAL	12	13	61	43	543	672
BRYAN S	CORE				0	. 36370	BRYAN	SCORE				O	. 34291
			,										
	LUND	CONT	INGEN	CY PR	OGNOSI	s		MULTIP	FE 01	SCRIM	INAM	ANALY	\$1\$
	=		08SER	VED						ORSER	VED		
FORE- Cast	ı	2	3	4	\$	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
ı	-	0	e	0	0	C	1	4	2	6	2	3	17
2	6	4	15	2	8	35	?	. 0	ı	0	0	0	1
3	2	ħ	27	7	9	46	3	7	8	36	12	27	90
4	3	3	21	32	135	194	4	1	2	14	20	●2	119
5	1	0	3	2	391	397	5	0	0	5	9	431	445
TOTAL	12	13	18	43	543	677	TOTAL	17	13	61	43	543	672
BRYAN	SCGHE				¢	.38621	HRYAN	SCORE				(	0.43028

### VERIFICATION OF G MADOR VISINILITY FOR CASTS WESTINGER AFR. CHICOPES, MASS. THE VERIFICATION CRITERION IS THE BRYAN SCOPE

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TOTAL

HEATA. . .

PERSISTENCE						SUPJECTEVE							
		r	185FR1	vEu					•	UBSEK!	VED		
FEIRE- CAST	ı	2	į	4	5	TOTAL	FPRE- CAST	1	2	3	4	5	TOTAL
ı	7	2	2	3	14	23	1	1	ı	ı	ა	o	3
2	ı	0	3	2	6	12	2	2	1	7	2	4	. 14
3	3	3	14	9	13	47	3	3	3	11	10	4	71
4	2	4	7	12	17	42	4	4	5	7	13	23	52
٠,	ı	2	14	31	472	520	5	ı	1	14	32	491	539
TUTAL	9	11	40	51	522	637	TOTAL	9	11	40	57	522	639
HRYAN S	CORF				ø.	.22277	PRYAN SC	.0 <b>9</b> F				0.	. 22164
CL [MAT	ocast				OF PEN	SISTENCE				GROHP	145		
		•	OBSER	۷£٦						ORSER	AED		
FORE- CAST	1	2	3	4	5	TOTAL	FGRE- CASI	1	2	3	4	5	TOTAL
1	2	?	2	2	2	10	t	2	1	2	G	5	10
2	0	0	г	ů	C	ง	2	9	a	ı	1	\$	8
3	5	?	14	9	н	38	3	4	4	17	10	38	73
4	1	5	10	15	46	71	4	3	5	17	41	165	231
5	1	2	14	31	472	52C	5	0	1	3	5	302	317
TOTAL	9	11	40	57	522	639 .	ECTAL	ą	11	40	57	522	639
HRYA'S	CCPF				0	• <i>2</i> 4500	HRYAN S	COME				0	.37222
	しりがり	CONT	l 4GENO	(Y 12	0580511	<b>.</b>	મા	IL I [9]	LE DI'	SC214	l nav j	ANALY!	515
		ž.	IFSt 41	(Fn						MSER	VCD		
FORE- CAST	1	2	,	4	5	TOTAL	FCRE- CASI	1	2	4	4	5	TOTAL
i	٥	.)	۲.	)	3	٠,	1	?	2	2	2	10	1#

C-16

32 185

4 244

5>2

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2.74

7.77714

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1-11 AL

HIVA'S CO. ES

### VERIFICATION OF 2 HEUR CEILING FURECASES BASHINGTON NATIONAL ALREORI THE VERIFICATION CRITERION IS THE BRYAN SCURF

PERSISTENCE

Ð	ú	€	٤.	¥	٠,	r	٤
.,	n	•	5	•	-	L	ı,

FORE- CAST	1	2	3	4	5	TOTAL
ı	1	2	0	¢.	0	3
•	c	2	2	1	O	5
3	1	0	22	11	3	37
4	6	9	b	17	13	36
•	2	0	1	14	560	576
TUTAL	3	4	31	43	576	65.7

PRYAS SCORE

0.45971

CLIMATOLOGICAL EXPECTENCY OF PERSISTENCE							GROUPING									
		(	DASER	VED				UMSERVED								
FORE- CASI	1	2	3	4	5	TOTAL		FORE- CAST	i	2	3	4	5	TOTAL		
ı	c	9	0	٥	С	c		ı	1	2	n	٥	0	ż		
2	1	3	1	1	c	6		2	0	1	2	1	3	7		
3	1	1	23	11	3	39		3	9	ŧ	15	7	9	32		
4	c	0	6	17	13	36		4	1	0	14	29	+1	135		
5	ı	0	1	14	560	576		5	1	9	0	6	473	480		
[O] AL	3	4	51	43	576	657	•	TOTAL	3	4	31	43	576	657		
FRYAN S	CORE					1.4646t		HRYAN SC	ORF				0	.44018		

LUND CONTINGENCY PROGNOSIS Observen							MULTIPLE DISCRIMINANT ANALYSIS DHSERVED							
i	c	ń	r	c	c	;	1	1	2	c	e	c	3	
2	1	4	?	ı	e	a	2	3	1	2	2	3	8	
3	ı	9	22	11	3	5.2	1	G	ı	17	8	5	34	
4	^	o	7	7 7	84	119	4	ı	a	12	30	41	5%	
5	ı	ð	ə	•	487	443	4	ı	0	o	3	524	528	
TGTAL	3	4	31	4 )	578	651	16141	3	4	11	43	576	657	
PHYAL S	Cuse				ņ	.53243	sec of Chy. A	.c					. 114.	

# VERIFICATION OF 3 MOUN CETLING FUNECASTS RESIDENT NATIONAL AIRPORT THE VERIFICATION CRITERION IS THE MAYAN SCORE

FF45151FNCE

SUBJECTIVE

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- 14

OBSERVED						ONSERASD							
FORE~ CAST	1	2	,		5	TOTAL	FCRE- CAST	1	2	3	•	•	TOTAL
ı	1	0	0	o	1	2	2	2	0	ð	n	o	٥
2	0	1	3	1	2	i	2	0	3	3	ð	5	5
3	٥	9	10	2	0	12	3	0	1	12	+	3	25
4	0	э	6	13	9	28	4	o	¢	4	1.5	16	5 5
5	1	ı	5	16	471	492	5	2	i	3	10	462	475
TOTAL	2	2	22	32	463	541	TOTAL	2	2	22	37	463	541
BRYAN S	BRYAN SCORE 0.34063					BSTAN S	SCDRE				0.	. 33702	
Ců IMAT	0.0610	AL E	KPECT	ENCY	OF ⊅ER	SESTENCE			•	, KDUP	ING		
	OBSERVED								(	OBSER	VED		
FORE- CAST	1	2	3	•	5	1034L	FORE- CAST	1	2	3	4	5	TOTAL
1	G	0	0	0	o	C	1	1	9	0	¢	1	5
2	ι	0	3	0	1	5	2	o	1	2	ı	1	5
3	o	1	4	1	2		3	0	0	6	0	14	26
4	s	0	12	۱,	•	36	4	e	ð	12	24	72	128
5	1	1	3	16	471	472	5	1	:	2	7	175	386
TOTAL	2	2	22	12	483	541	TOTAL	2	2	22	32	483	541
BRYAN S	COME				d	.27044	BRYAN	SCORE				0	.34424
	LUND	CONT	INGEN	CY PA	06%051	s		MULTIPI	LE DI	SCR I×	i pari	ANALY	515
			OBSER	AEL						ORSEA	VED		
FORE- CAST	1	2	3	•	5	TOTAL	FGRE- CAST	ı	2	3	4	5	TOFAL
i	3	0	c	c	o	0	1	e	э	0	o	0	э
2	1	ı	3	1	3	9	,	1	0	1	1	7	10
3	c	0	10	2	0	12	3.	9	i	12	5	7	25
4	٥	1	ŕ	25	128	162	4	O	ı	8	19	34	62
5	1	o	1	4	152	358	5	1	e	1	7	435	444
TOTAL	2	2	53	12	-83	541	TOTAL	2	7	22	32	483	541
PRTAG !	SCORE				C	37501	PRYAN	SCORE				c	. 39680

# THE VEHIETCATION OF SHITM CHEETING HERMAN SCHEET AND THE VEHIETCATION CRETERION, IS THE HAYA. SCHEET VEHIETCATION OR SHITM IN THE HAYA. SCHEET VEHIETCATION OR SHITM (SEETING AND HAY

PERSISTI SE

BATECTIAE

			ESFRY	e 7					U	FSEFY	r (·		
-}4:14   645	1	,	i		\$	IDIAL	Ft PE- CAST	1	7	,	4	5	14126
ı		ć	o	,	2	2	1	r	ţ.	G	Ĺ	o	c
	c	1	,	2	1	7	2	۳	3	3	2	Ū	5
	c	i U	5		7	11	3	n	1	4	1	3	19
;	ť	1	6	11	10	21	4	•	1	6	11	21	39
		,	4	1~	+7+	495	•		1	1	14	465	441
101 M	ŗ	, 4	i e	1.7	469	444	1016t	•	4	is	37	443	544
#274 <u>\$</u> \$	CC4E				2	<b>. 229</b> 6·	ሕ7∀ደኤ S:	ርም፥				0	<b>.</b> 26096
		_			ar arbi				(	,बक्क	ياد ا		
CL IMAT	OFUCTO.		}*\$E*;		TT PEK	St21C.K.F				)#5E+1			
EUSE -	1	,	;	•	<b>5</b>	19143	FG2*- C441	ŧ	ż	3	ŧ	5	19841
		,	ú	į	٤	s	<b>t</b>	:	•	c	u	3	3
ì	S		i	1	7	•	,		J	3	÷	1	1
2	•	•		,	2	,	1		1	11	11	11	34
,		1		15	11	32	•	r	1	7	17	6.3	114
4		1	4		474	495	3		3	>	4	305	392
5 FOTAL		3 >	1•	17		344	ISTA		\$	ì «	32	6#4	544
esaba ?	seakt				¢	:_}uur 1	<b>ቀ</b> ፉ ፕ <b>ል</b> ህ ን	,r* . *				c	. 30108
	Lu40	crit	‡3sint 1	is y r	የሱሑ651	<b>«</b>	,	. , ; ; ;	เรา	5C=1#	juani	. ANALY	<b>'51</b> 5
			<b>.</b> #588							. * , - •	et"		
FORE- CASI	i	2	3		. 5	iolal	rret- cest			,	•	5	EJIN
1	•	1		,	•		1		ç	٠	s	e	٥
:	^	t	•		,	•	2			<b>:</b>	•		1
3	•	1	,	,	, ,	; 3	•		1	4	٤*،	13	32
4	•	2	ą	15	75	108	•		•	13	10	45	76
>		,	ı	4	609	417	٠,		i	•	٠	<b>~ 30</b>	413
THEAL		5	1 4	13	44#	744	1112		-	1 7		444	***
* <b>4</b> Y£'	56					A.7+1 ·	a 4 3 4						

### VELIFICATION OF 7 HOUR CEILING FURECASTS WASHINGTON NATIONAL AIRPORT THE VERIFICATION CRITERION IS THE BRYAN SCORE

PERSISTENCE

SUNJECTIVE

		;	BSERY	/ED					(	DASFR	e D		
FORE- CAST	i	2	3	4	5	TOTAL	FORE- CAST	ı	2	3	4	5	TOTAL
1	0	0	0	0	3	3	1	e	٥	o	0	0	0
2	0	1	2	1	7	11	2	0	2	3	1	2	
3	۵	3	4	12	6	25	3	0	3	6	10	7	26
4	0	2	6	10	17	35	4	0	5	7	15	19	43
<b>5</b> ,	1	Z	9	72	573	507	5	ı	1	5	19	578	604
TOTAL	1	8	21	43	606	681	TOTAL	1	8	21	45	606	681
BRYAN S	CORE				0	.1639?	RRYAN SI	CORE				0	.23019
CLIMATO	OLOGIC	AL FX	PECTE	ENCY	OF PER:	SISTENCE			(	SROUP 1	ING		
		C	BSERV	/E0					C	BSER	/ED		
FORE- CAST	1	2	3	4	5	TOTAL	FORE- GAST	ì	2	3	4	5	TOTAL
ı,	0	6	0	c	3	0	1	0	0	0	0	i	1
2	٥	0	1	0	5	3	2	0	0	0	0	1	1
3	0	3	4	8	9	24	3	٥	3	10	11	19	43
4	¢	3	7	15	22	41	4	0	5	10	30	163	208
5	1	2	9	55	573	607	5	1	0	ı	4	422	426
TOTAL	ı	•	21	45	<b>\$06</b>	481	TOTAL	ı	A	21	45	306	681
BRYAN S	CORE				0.	.20371	BRYAN SC	ORE				0.	.3106Z
	LUND	CONT	INGENI	CY PR	OGNOS I	<b>s</b>	<b>}4</b> (	JLTIPL	.E 01	SCRIM	INANT	' ANALY	\$15
		1	DBSER	VED					1	OBSER	VED		
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
1	o	0	0	0	G	0	1	0	0	0	0	0	0
2	C	0	0	0	4	•	2	٥	0	0	0	0	0
3	0	4	9	14	3	30	³.	0	4	6	11	55	43
4	0	4	10	30	161	205	4	0	4	13	27	76	120
5	ı	0	ş	ı	438	442	5	t	0	7	7	508	51#
JATOT	1	8	21	45	606	481	TOTAL	t	8	21	45	506	681
BRYAN S	CORE				0	.31466	BRYAN S	CORF				0	. 30632

## VEREFICATION OF B HOUR VISINILITY FURECASTS RATIO AND THE MATTER ALL PROPERTY IS THE HAVAN SCORE

PERSISTE:	ić (

		4	orsea	A F D		
FORE- CAST	ŧ	?	3	4	•	total
ı	3	0	o	3	ì	5
2	1	1	ŧ	ž	0	5
3	G	ŧ	9	O	4	10
4	7	1	4	6	1 C	23
5	0	٥	ŧ	10	607	644
TOTAL	6	3	17	39	622	697

BRYAN SCORE

\$100 ·

Ž.

0.35468

	(	JUSER'	VED					1	OBSEX	VED		
1	2	3	4	5	TOTAL	FORE- CAST	1	2	3	4,	5	TOTAL
3	1	1	1	1	7	1	2	1	0	3	1	7
C	э	0	0	0	o	,	1	0	0	0	0	1
0	ı	3	1	c	5	3	1	1	1	G	20	23
3	1	6	7	14	31	4	2	ı	14	22	122	161
0	0	7	30	607	644	5	C	v	2	14	479	495
6	3	17	39	622	647	TOTAL	6	3	17	39	622	667
	-	1 2 3 1 0 0 0 1 3 1 0 0	1 2 3 3 1 1 6 0 0 7	1 2 3 4 3 1 1 1 6 0 0 0 0 1 3 1 3 1 6 7 0 0 7 36	1 2 3 4 5 3 1 1 1 1 6 0 0 0 0 0 1 3 1 C 3 1 6 7 14 0 0 7 30 607	1 2 3 4 5 YOTAL  3 1 1 1 1 7 6 0 0 0 0 0 0 1 3 1 C 5 3 1 6 7 14 31 0 0 7 30 607 664	1 2 3 4 5 TOTAL FORE-CAST  3 1 1 1 1 7 1  0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 2 3 4 5 TOTAL FORE— CAST 1  3 1 1 1 1 7 1 2  0 0 0 0 0 0 0 7 1  0 1 3 1 0 5 3 1  3 1 6 7 14 31 4 2  0 0 7 30 607 644 5 0	1 2 3 4 5 YOTAL FORE- CAST 1 2 3 1 1 1 1 7 1 2 1 0 0 0 0 0 0 0 0 7 1 0 0 1 3 1 0 5 3 1 1 3 1 6 7 14 31 4 2 1 0 0 7 30 607 644 5 0 0	1 2 3 4 5 TOTAL FORE— CAST 1 2 3  3 1 1 1 1 7 1 2 1 0  0 0 0 0 0 0 0 7 1 0 0  0 1 3 1 0 5 3 1 1 1  3 1 6 7 14 31 4 2 1 14  0 0 7 30 607 644 5 0 9 2	1 2 3 4 5 YOTAL FORE— CAST 1 2 3 4  3 1 1 1 1 7 1 2 1 0 3  0 0 0 0 0 0 0 7 1 0 0 0  1 3 1 6 7 14 31 4 2 1 14 22  0 0 7 30 607 644 5 0 0 2 14	1 2 3 4 5 TOTAL FORE- CAST 1 2 3 4 5  3 1 1 1 1 7 1 2 1 0 3 1  0 0 0 0 0 0 0 0 0 0 0  0 1 3 1 0 5 3 1 1 1 0 20  3 1 6 7 14 31 4 2 1 14 22 122  0 0 7 30 607 664 5 0 0 2 14 479

	LUND	CONT	INGEN	CY PF	ROGNES	S	М	JETIPL	.E C1	SCRIM	INANI	ANALY	\$15
			NHSER	v£n						nesek	VEÛ		
FURF- CAST	1	2	3	4	5	TOTAL	FCRF- Cast	ı	2	3	4	5	TOTAL
ì	0	0	0	e	c	o	1	2	o	0	c	ı	3
ż	3	0	0	0	1	4	2	n	o	0	2	1	3
1	1	•	13	15	28	59	3	3	3	4	3	12	25
4	2	0	1	3	5	10	4	1	0	10	29	108	148
5	0	0	4	22	588	614	5	r	0	3	5	500	508
TOTAL	4	ż	17	3)	622	687	TOTAL	6	3	17	34	655	687
PRYAY S	COx (				2	• 3246C	HRYAN SC	१९५७				o.	. 174 - 2

## VERIFICATION OF 3 HOUR VISIBILITY FORECASTS WASHINGTON NATIONAL AIRPORT THE VERIFICATION CRITCHION IS THE BRYAN SCORE

		PERS	SISTEN	ic e					şu	KJFC I	IAŁ		
		OF	SFRVE	D.					0	dSERV	ΕD		ž.
FORE- CAST	1	2	•	4	5	TOTAL	FORE- Casi	ì	,	3	4	5	TOTAL
1	Į	ı	ı	2	1	6	l	0	0	0	e	Q	0
2	ı	J	ŧ	0	e	?	>	Ġ	c	2	o	2	4
3	0	1	ı	2	3	7	3	2	1	2	4	4	13
4	0	0	3	5	13	21	4	1	l	2	6	10	50
5	1	0	7	18	547	573	5	ę.	0	7	17	548	572
TOTAL	3	2	13	27	564	669	TOTAL	,	2	13	27	564	609
BRYAY SC	:054				0.	. 18642	HRYAN SC	ORF				0.	21640
CL thát	'01 06 II	CAL E	XPECTI	ENCY	OF PER	SISTENCE				GROUF	·146		
•=•			OBSER							nases	VED		
FORE- CAST	1	z	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
1	0	i	i	0	1	3	1	0	þ	ı	1	ı	+
ž	6	0	٠. ٥	į	c	o	2	0	G	0	ı	ı	2
3	a	e	ì	2	1	4	3	2	2	3	,	12	5.5
4	2	1	ð	18	61	88	4	0	0	6	ų	54	79
5	1	ø	5	7	501	514	5	1	G	3	1.2	486	502
TOTAL	3	2	33	27	564	609	TOTAL	3	,	13	21	964	509
BRYAN (	SCORF					0.49522	BRATEN S	CORE		,		•	0.76818
	LUNO	CONT	INGENI	EY PR	0 <b>.</b> 40\$1	ı <b>s</b>	*	ULTIP	LE DI	SCRI	' IHAN	T ANALY	\$15
		1	OBSER	v E r						OBSE	LYFD		
FORE- CAST	1	2	,	4	•	TOTAL	FGRE- Cast	Ł	,	3	4	5	TOTAL
i	2	2	,	3	4	14	1	0	0	•	0	0	1
ž	'n	ō	0	U	ε	•	2	1	ì	2	2	5	11
<i>\$</i>	n	)	0	ì	2	•	٠ 1	ą	1	0	?	21	24
4	ı	0	}	•	21	6.7	4	ı	0	8	19	78	106
5	~	ō	1	, 4	501	575	5	1	6	2	4	460	467
TOTAL	ì	?	<b>;</b> }	37	363	463	tuidt	ŧ	2	33	21	564	÷03
pr-ab	schar					0.(827)	· 8874% S	CORE				i	0.49 <i>f</i> 57

## VERIFICATION OF 5 HOUR VISIBILITY FORICASTS WASHINGTON NATIONAL AIRPORT THE VERIFICATION CRITERION IS THE BRYAN SCORE

15

			\$1 <b>\$</b> 16							BJECT BSERV			
		O	BSERV	€Ð					U	nsek v	EU		
FURE- CAST	1	?	3	4	5	TOTAL	FARE- CAST	i	2	3	4	5	TOTAL
1	C	1	2	U	4	1	1	0	0	0	o	0	0
ş	ŋ	0	0	0	3	3	?	1	0	0	c	4	5
3	0	o	1	1	7	9	3	Q	ı	1	3	11	16
4	1	9	2	7	iz	22	4	0	ı	2	3	9	14
>	2	2	6	17	628	655	5	7	5	8	19	630	661
TOTAL	3	3	11	75	654	696	TOFAL	3	į	11	25	654	696
BRYAN S	CORE				0	.18509	BRYAN	SCORE				o	.08722
CLIMAI	OLOGIC	AL EX	PFCTE	NCY	ije per	SISTENCE				GROUP	ING		
			ASER							OBSER	VED		
FARE- CAST	1	2	3	4	,	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
1	e	0	2	G	2	4	1	0	0	0	2	3	5
2	0	ŋ	0	ø	0	a	2	0	ı	ı	ŋ	5	7
3	C	G	s	1	3	4	3	e	Q	3	3	16	22
4	3	2	7	?3	323	358	4	1	0	6	10	94	111
5	o	1	5.	ŧ	326	330	5	7	2	1	10	536	551
TOTAL	3	3	11	25	654	696	FOTAL	3	3	11	25	654	696
eryan i	SCURE				Ċ	37558	ŊϤΥΛĄ	SCORE				(	0.27907
	ԼՍՀՈ	CONT	INGENI	CY PE	eogwcs i	s		MULTIPL	F 01	SCRIM	[MAN]	ANALY	rsis
		τ	)HSER'	ven						กหระห	VEO		
FORE- CAST	1	2	3	4	5	1014L	FORF- CAST	ı	2	3	4	5	TOTAL
t	c	1	ı	s	1	3	1	0	ι	0	1	4	6
7	C	0	0	o	e	c	,	o	0	1	C	6	7
3	9	0	4	5	29	34	3	2	0	2	2	6	12
4	2	ı	ü	12	127	146	4	0	1	3	21	155	185
5	1	ı	?	b	491	504	•	1	1	٥	ı	483	486
. Turat	1	3	11	25	654	690	TOTAL	3	3	11	25	654	696
የA Y S.E	4C 1AF				•	0.30541	3°YAN	CTEN					0.47211

# VERIFICATION OF 7 HOUR VISIBILITY FORECASTS MASHINGTON NATIONAL AIRPORT THE VERIFICATION CRITERION IS THE BRYAN SCORE

PERSISTENCE

SUBJECTIVE

			BSERV						10	SERVE	:0		
ORE-	ı	2	3	4	5	TOTAL	FORE- CAST	ı	2	3	4	5	TOTAL
	^	0	ı	0	6	1	1	0	0	0	0	0	0
1	0	0	1	o	2	3	2	1	0	0	0	3	4
2	0	1	· l	1	6	g	3	0	0	2	4	16	55
3	0	•	4	4	15	23	4	0	0	1	1	8	10
5	3	ı	5	15	547	671	5	2	2	ą	15	649	617
TOTAL	3	2	15	20	676	713	101AL	3	2	12	50	616	713
BRYAN SC	ORE				•	0.11049	HRYAN SC	ORE				٥.	06181
CI IMATI	n: 061(	'AL F	XPECT	ENCY	OF PE	RSISTENCE			(	GROUP	ING		
CEIRAI	25001		OBSER						,	DASERY	/ED		
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	1	2	\$	4	5	TOTAL
,	0	0	1	G	1	2	1	9	٥	1	0	3	•
1 2	0	0		0	_	0	2	٥	0	2	0	5	7
3	0	1	1	0	_	4	3	0	0	2	2		12
4	3	1	•	13		367	4	3	1	6	17	313	340
5	0	0	1	7		340	5	C	ı	1	1	347	350
TOTAL	3	2	12			713	TOTAL	3	5	12	30	676	713
BRYAN S	SCORE					0.14255	BRYAN S	CORE				c	2.27212
	LUNS	) CON	T I NGE	NCY F	ROGNO	<b>S1</b> S	,	WLT1#	LE D	ISCR IA	INAN!	r AHALI	rsis
				RVED						ORSE	RVED		
FORE- CASY	1	2	3		. 5	TOTAL	FORE- CAST	ı	2	3	4	5	TOTAL
i	0	0		•	0 0	0	1	0	1				12
2	0	0	. (	•	0 0	0	2	0					•
3	0	o	) (	0	0 2	? ?	3	0					•
4	0	d	) (	0	0 16	16	4	1					176
5	3	a	1	2 2	0 65	695	5	2					517
TOTAL	1		? 1	2 2	0 67	6 713	S OT AL	3	. 2	! 12	20	675	713
BRYAN	SCORE	i				-0.00770	RRYAN	SCARE					0.27425

# VERTFICATION OF 2 HOUR CEILING FORECASTS TOLEWILD INTERNATIONAL AIRPORT THE VERTFICATION CRITERION IS THE BRYAN SCORE

#### PERSISTENCE

ОH	SER	A É O
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FORE+ CAST	1	2	3	4	5	TOTAL
1	9	h	2	1	4	24
2	7	14	7	3	5	66
3	O	3	32	10	ş	59
4	۵	7	14	70	34	125
5	1	7	13	28	1136	1185
FOTAL	17	68	68	112	1188	1453

HRYAN SCORE

0.5730?

CLIMAT	010610	AL E	(PECI	ENCY	OF PE	ASISTENCE			(	GROUP	1.10		
			JBSER						(	CHSER	VED		
FORE- C-SI	ı	2	3	4	5	TOTAL	FORE- CAST		2	3	4	5	TOTAL
i	7	5	2	υ	3	17	1	3	3	0	1	1	8
2	3	41	7	4	6	67	?	11	43	11	3	12	06
3	٥	8	32	10	9	59	3	0	6	30	11	27	74
4	c	7	14	70	34	125	4	3	14	23	85	239	364
5	1	7	13	26	1136	1195	5	0	2	4	12	909	927
TGTAL	17	68	68	112	1188	1453	TCTA	L 17	68	68	112	1158	1453
BRYAN S	CURE					0.57662	BRYA	n SCORF					0.54495

EUND CONTINGENCY PROGNOSTS

#### MULTIPLE DISCHIMINANT ANALYSIS

		0	HSER	4ED			OBSERVED						
FORF- CAST	1	2	3	. 4	5	TOTAL	FORE- Cast	ı	2	3	4	5	
1	c	ð	ŗ	o	9	c	ı	2	3	ı	¢	0	
2	16	47	li	4	19	97	,	13	41	9	3	9	
3	c	7	27	12	14	60	3	1	9	27	9	12	
4	o	7	20	74	95	196	4	1	£ L	21	88	112	
>	1	7	10	2.2	1060	1100	5	9	•	4	17	1055	
FOTAL	ι7	68	68	115	1188	1453	TOTAL	17	68	68	112	1188	

PRYAS SCORE

3.54745

HAYAR SE SAT

0.54642

TOTAL

# VERTETCATION OF 3 HOUR CEILING FORECASTS TOLEWILD INTERNATIONAL ATRPORT THE VERTETCATION CRITERION IS THE ARYAN SCORE

	PERS (STF4CE						SUMJECTIVF OBSERVED						
		0	BSFRV	٤n					O	BSERV	FD		
FURE- CAST	ı	2	3	4	5	PITAL	F OHE- Casi	ı	2	3	4	5	TOTAL
ì	9	4	2	1	5	26	1	2	o	1	G	1	4
2	5	24	6	4	4	43	2	h	30	9	2	9	58
3	o	13	28	1	10	58	3	?	14	24	15	ð	63
4	c	3	11	33	37	44	4	0	5	16	39	35	95
5	0	6	10	32	1024	1072	5	?	6	?	21	1027	1063
TOTAL	14	55	57	17	1080	1243	FOTAL	14	55	57	77	1080	1283
BRYAN SC	CORE				o	.41536	HAYAN S	CORE				•	0.42587
CLIMATO	DL 0610	AL E	KPEC11	FNCY	NF PER	SISTENCE				GRQUP	146		
			OBSER	CBV					•	CBSER	VED		
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	ı	2	3	4	5	FOTAL
1	5	3	2	0	2	17	t	1	4	э	1	3	9
2	9	30	6	5	7	57	?	6	17	7	4	11	45
3	0	13	28	1	10	58	3	7	25	31	15	74	152
4	0	3	11	33	37	84	4	0	5	16	41	154	216
5	c	6	10	32	1024	1072	5	0	4	3	16	838	861
TOTAL	14	55	57	77	108C	1283	TOTAL	14	55	57	7 7	1080	1283
BRYAN S	CORE				c	. 42350	BRYAN S	CORF					0.33930
	LUND	CONT	INGEN	CY PF	เถตฯกรเ	s	•	FUL F1P	LE DI	SCRIM	INAN	E ANAL	<b>YS1</b> S
			OBSER	ven						OBSER	vED		
FORE- CAST	ı	2	3	4	5	TOTAL	FORE- CAST	1	2	3	4	. 5	TOTAL
1	c	0	0	o	0	c	1	4	4	2	0	2	1~
2	14	33	8	5	9	69	2	10	24	7	5	1	53
3	0	12	20	7	9	48	3	0	16	25	•	10	60
4	c	,	27	45	183	260	4	c	5	22	•, •	119	199
5	•	5	7	70	879	906	5	r	4	1	10	942	957
101AL	14	55	57	77	1066	1263	†CTAL,	14	55	57	7 7	1080	1283
ERYAN S	CCRE				(	3. 38506	. <b>P</b> #Y89	SC+ RE					0.44647

# VERIFICATION OF 5 HOUR CEILING FORECASTS IDLEWILD INTERNATIONAL AIRPORT THE VERIFICATION CRITERION IS THE HRYAN SCORE

PERSISTENCE

SUBJECTIVE

PERSISTENCE						MSERVED							
		0	BSERV	EΓ					n	HZERV	ED		
FORE- CAST	ı	2	3	4	5	TOTAL	FORE- CAST	1	?	3	4	5	TOTAL
1	6	7	3	0	11	27	1	C	2	o	0	0	2
2	5	27	11	6	12	61	2	9	22	10	ř	16	64
3	1	12	27	12	27	74	1	5	18	13	16	17	89
4	1	6	11	41	54	113	4	C	6	15	45	45	111
5	16	8	18	52 1	.C\$8	1176	5	9	12	12	43	1109	1185
TOTAL	23	60	70	111	187	1451	TOTAL	23	60	10	111	1187	1451
PRYAN S	CORE				0	.37417	hryan S	∟U×€				o	. 38296
CL I MAT	010610	AL J	KPECT	ENCY (	OF PER	SISTENCE				GROUP	ING		
			DBSEK						ı	DUSER	VED		
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
1	2	3	0	٥	1	6	1	5	5	2	c	7	19
2	9	25	8	4	17	61	2	2	15	6	6	15	44
3	1	18	31	12	20	82	3	4	16	29	8	39	96
4	1	6	13	43	61	124	4	7	20	30	75	278	410
5	10	8	16	52	1088	1176	5	5	4	3	5.5	848	862
TOTAL	23	60	. 70	111	1187	1451	TOTAL	23	60	70	111	1187	1451
eryan :	SCORE				•	0.37524	HRYAN !	SCORE					0.39538
	LUAD	CON			OGNOS	ıs	,	K.IL.T.11	LF DI	SCR [I		r anal	<b>YS1</b> S
			OBSE	RVED			FORE-			01.30			
FORE- CAST	ì	2	3	4	5	TOTAL	CAST	1	2	3	•	5	TOTAL
1	C	0	0	G	0	o	1 .	. 2	•	2			9
2	12	35	12	10	41	110	2	н	55				52
3	1	10	29	16	30	BC	3	0					68
4	4	13	24	19	276	396	4	7				210	347
5	6	2	5	12	840	865	٩.	6					965
TOTAL	23	60	70	111	1187	1451	TOTAL	23	60	70	111	1187	1451
PRYAS	SCREE					0.46216	RRYAN	SCORE					0.4535+

#### VERIFICATION UF 7 HOUR CEILING FORECASTS IDLEWILD INTERNATIONAL AIRPORT THE VERIFICATION CRITERION IS THE BRYAN SCCRE

PERSISTENCE

SUBJECTIVE

			OBSE	RVED				ORZEWAED						
FORE- CAST	1	2	3	4	5	1014L	FOR CAS		2	3	4	. 5	TOTAL	
1	6	3	2	1	15	27	1	2	o	0	o	. 0	2	
2	8	20	4	4	20	61	5	10	21	5	6	. 13	55	
3	1	15	16	16	24	74	3	4	20	26	23	21	96	
4	3	7	17	29	57	113	4	2	10	16	44	54	126	
5	6	16	21	69	1065	1177	5	6	10	11	5 3	1093	1173	
TOTAL	24	61	60	176	1101	1452	101	AL 24	61	60	126	1181	1452	
BRYAN S	SCORE					0.25375	<del>R</del> RY,	AN SEGRF					0.3597#	
CLIPAT	010610		KPECT DBSER		OF PE	RSISTENCE				GROUP OBSER				
FORE- CAST	1	2	3	4	5	TOTAL	FURF CAST		2	3	•	5	TOTAL	
1	0	0	æ	0	c	ប	1	0	0	ı	0	11	12	
2	11	14	4	2	26	57	7	7	16	6	,	22	59	
3	1	9	14	10	19	53	3	2	6	1	5	14	34	
4	6	22	21	45	71	165	4	12	30	45	#2	262	431	
5	6	16	21	69	1065	1177	\$	3	9	1	32	872	917	
TOTAL	24	<b>61</b>	69	126	1161	1452	101A	L 24	61	60	126	1181	1452	
BRYAN S	CGRE					0-26449	BRYA	N SCORF				,	0.33615	
	LUND				OGNOS	ıs		MULTIP				F ANAL!	<b>1</b> 515	
FORE-			BSER	<b>A</b> F()			FORE	_	•	DASER	AED			
EAST	t	2	3	4	5	TOTAL	CAST		2	3	4	5	TOTAL	
1	0	0	0	0	0	0	1	0	0	0	G	0	0	
2	13	21	5	5	3?	81	2	. 5	10	5	6	15	41	
3	3	14	17	24	28	86	3	4	9	7	5	•	34	
4	5	17	33		216	333	4	12	34	46	80	183	355	
5	3	9	5	15		952	5	3	8	5	35		1022	
TOTAL	24	61	60	126	1161	1452	A 101	t 24	61	60	128	1161	1452	
BRYAN S	CORF					0.32277	RRYA	M SCORE					0.34172	

#### VERIFICATION OF 2 HOUR VISIBILITY FORECASTS IDLEWILD INTERNATIONAL AIRPORT THE VERIFICATION CRITERION IS THE BRYAN SCORE

PERS	ISTENCE	
------	---------	--

085	ER	ven
-----	----	-----

FORE- CAST	1	2	3	4	-	TOTAL
1	14	6	3	4	6	33
2	4	6	4	1	4	19
3	4	7	17	5	9	42
4	c	4	6	10	30	5 C
5	3	4	12	79	1173	1221
TOTAL	25	27	42	49	1222	1365

BRYFY SCORE

0.43347

CLIMAT	CLIMATOLOGICAL EXPECTENCY OF PERSISTENCE									GROUP	146		
		(	DØSER	<b>C</b> BV						085ER	VED		
FORE~ CAST	1	2	ż	4	5	TOTAL	FORE- CAST	1	z	3	4	5	TOTAL
1	14	6	3	4	6	33	1		1	0	2	2	13
2	4	5	1	0	2	12	2	6	6	7	4	13	36
3	4	8	20	b	11	49	3	2	11	16	13	101	143
4	٥	4	6	10	ټو	50	4	7	7	12	23	249	298
5	3	4	12	29	1173	1221	5	2	2	7	7	857	875
TOTAL	25	27	42	49	1272	1365	TOTAL	25	27	42	49	1222	1345
BRYAN S	CORE				ď	05201	BRYAN :	SCORE				c	-41714

	CNUJ	CONT	INGEN	CY P	ROGNOS	15		MULTIP	LE 01	SCRIM	INANI	. AMAL	<b>1515</b>
			DBSER	VED						OBSER	VED		
FORE- CAST	1	2	3	4	5	TOTAL	FORE— Cast	1	2	3	4	5	TOTAL
•	9	0	0	0	0	0	1	18	7	3	5		41
2	11	9	3	4	8	37	2.	0	3	2	1	ì	7
3	10	14	20	15	37	96	3	2	5	14	3	14	38
4	С	0	၁	0	0	q	4	4	11	22	38	332	407
5	4	4	17	30	1177	1232	5	1	1	1	2	847	872
101,	25	27	42	49	1222	1365	TOTAL	25	27	42	49	1222	1365
BRYAN S	SCORE					0.26664	BRYAN	SCORE				(	0.60849

### VERIFICATION OF 3 HOUR VISIBILITY FORECASTS IDLEWILD INTERNATIONAL AIRPORT IMP VERIFICATION CRITERION IS THE RATAN SCORE

PERSISTENCE

OBSERVED

SUBJECTIVE

OBSERVED

FUFE

\$01 A

FORE CASI

> 1 2

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ERYA

FORE CASI

Į

1011

ERY!

			UJCAT										
FORE- CAST	1	2	3	•	5	TOTAL	FORE- CAST	1	2	3	•	5	TOTAL
1	14	4	2	5	6	31	1	2	ı	0	1	4	•
2	3	3	7	ט	6	19	2	•	9	5	3	•	32
3	3	1	7	4	14	29	3	6	6	14	3	17	46
4	0	6	7	*	24	45	4	5	4	13	20	36	76
5	5	8	17	31	1151	1212	5	3	2	•	21	1138	1172
TOTAL	25	22	40	46	1201	1336	TOTAL	25	22	40	48	1201	1334
SRYAM S	CORE				G	.29756	BRYAN S	CORE				•	0.42559
CLIMAT	0L061(	CAL E	LPECT!	WCY.	OF PER	SISTENCE				ROUP I			
		(	34SER1	/ED					•	<b>JOSER</b> 1	/ED		
FORE- CAST	1	2	3	•	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
1	14	5	3	5	•	35	1	3	4	•	4	41	59
2	3	1	2	0	3	•	2	0	2	5	1	18	26
3	3	2	•	٥	4	13	3	2	2	•	2	35	50
4	3	16	24	35	589	643	4	17	11	15	33	254	330
5	•	•	3	•	597	616	5	3	3	5		853	<b>872</b>
TOTAL	25	22	40	48	1201	1336	TOTAL	25	55	40	48	1201	1334
BRYM S	CORE				(	39252	BRYAN S	CORE					0-37550
	EUNO	CONT	INCEN	CY P	ROGNOS	ıs	,	MULTIP	LE DI	SCRIM	INAN	T AHAL	YSIS
			OBSER	VED						OB SER	AED		
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
1	0	0	0	0	0	o	1	12	2	3	3	•	26
2	16	7	9	5	12	49	2	5	5	1	2	5	15
3	3	t	5	2	4	15	3	7	7	10	2	23	49
4	5	13	23	36	420	497	•	5		25	38	363	436
5	1	ì	3	5	765	1113	5	2	0	3	3	804	810
TOTAL	25	22	40	48	1201	1336	TOTAL	25	22	40	48	1201	1336
BRYAN	SCORE					0.36436	BRYAN	SCORE					0.53504

#### VERTELEATION OF 5 MOUR VISIALITY FORECASTS TOLEWILD INTERMEDIAN STRUMENT FOR THE MAKEN SCREEN

		**	*5151	• 40 6					5.	14 H (	7340		
			Gasra	VFN						595E#:	vf D		
10#1- CAST	ı	,	1	•	,	TOTAL	10##+ . 451	ı	2	,	•	5	TOTAL
1	10	•	•	,	10	11	1	4	,	G	1	,	10
	2	4	1	7	•	20	,	,	•	,	2	1 i	27
,	1	3	7	•	70	•	1	5	•	•		21	54
•	,	, 2	•	4	17	43	•	ı	,	4	•	44	40
•	12	•	14	15	1115	1195	•	10	7	14	71	1107	1160
TOTAL	27	27	21	47	1126	1311	TOTAL	71	21	29	47	1144	1311
-	SCORE				(	0.17957	"ETAN S	CORF					8.24754

C ( ] #A1	oroci	CAL F	# PEC 1	E 47 T	06 661	ESISTENCE				GR MUP	146		
		4	785ER	VF I					(	Desfe	vf D		
FUMF- CASI	1	. 2	1	•	•	TOTAL	F ( <b>08.6 ↔</b> C & S <b>†</b>	ı	,	J	•	•	TOTAL
1	10	•	2	ı	•	21	t	,	2	,	•	12	10
2	1	•	ı	o	5	15	,	1	¢	,	1	14	10
5	1	2	5	,	11	22	•	11	7	•	•	21	41
4		19	1.7	12	586	. 669	4.	7	10	11	74	313	341
•	1.1	2	•	11	575	601	•	•	,	٨	12	150	845
TOTAL	21	22	29	47	1104	1311	11 TAL	27	??	24	47	11,04	1311
627 <b>34</b> 5	CONT				(	3.337#2	3 <b>7 &amp;% S</b>	CU41				6	. 24971

	LIM	CONT	14664	CY PI	106405	15		-16 1 1 P	. 1 01	55010	1744	-	7515
			OFSER							ORSEP			and the second
FORE-	1	· .			5.	miles	* *C*		7	,		\$	TOTAL
1	c	¢	0	9	r	c	1	,	3	1	ı	•	16
	10	7	•	,	16	• •	1	1	,	2	1	5	17
• •	•	5	,		110	134	•	,			•	12	>•
4	•	9	1	1.1	731	261	•	4	10	17	30	359	475
5	า	2	,	23	429	+70	•	•	Q	•	10	706	402
for#L	21	27	21	• 1	11#6	1311	O FAL	27	22	29	47	1100	1311
CHTAS	SCORF					0.17966	0 4 1 <b>2 1</b> 3	Coat					C. theis

## VERIFICATION OF 7 HERM VISIBILITY FORECASTS IDLEWILD INTERNATIONAL AIRPORT THE VERIFICATION CALIFERION IS THE DRYAN SCORE

		PER	SISTE	NCE					ŞU	AJEC 1	IAE		
		0	BSERV	E0					0	พระมห	C3		
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
1	10	0	4	2	1.	31	1	2	1	1	0	0	4
2	3	1	5	1	10	20	7	7	4	5	3	11	28
3	2	3	3	i	22	31	3	10	8	13	1,0	28	69
4	1	2	i,	2	36	45	4	2	2	8	7	45	64
5	15	12	26	44	1114	1211	5	10	3	15	32	1113	1173
TOTAL	31	18	42	50	1197	1338	TOTAL	31	18	42	50	1197	1336
BRYAN S	CORE				o	.12685	BRYAN S	CORE				0	.23292
CL 1HAT	0.0010	(AL E)	(PECTI	ENCY	OF PER	SISTENCE			C	ROUP	ING		
									(	DASER	<b>VED</b>		
FORE- CAST	1	2	3	4	5	TOTAL	FORE+ CAST	ì	2	3	4	5	TOTAL
1	6	0	3	1	8	18	1	2	4	3	5	35	49
2	2	2	5	ı	11	21	2	2	1	2	6	14	25
3	4	2	z	1	19	28	3	i	٨	4	4	104	115
4	14	12	28	42	867	963	4	16	2	13	6	163	200
5	5	2	4	5	292	308	5	10	5	20	29	881	94
TOTAL	31	18	42	50	1197	1338	TOTAL	31	18	42	50	1197	1338
GRYAN :	SCORE				C	0,27782	BRYAN S	SCORE				•	0.04895
	LUND	CONT	INGEN	EY P	ROGNOS:	15	,	WL FIP				T ANAL'	<b>731</b> 5
			ORSEA	VED						OBSER	YED		
FORE- CAST	ı	3	3	4	5	TOTAL	* PORE- CASS	t	2	,	4	5	TOTAL
1	0	O	0	0	6	0	1	10	3	1	۶	7	29
2	1	0	0	c	0	t	7	a	Û	2	3	27	35
>	5	\$	4	1	30	44	1	;	2	4	(	3	15
4	20	14	29	13	408	506	4	15	13	24	12	\$23	457
5	5	2	q	8	759	763	9	5	Ĉ	•	14	183	405
TOTAL	31	16	42	\$0	1197	1318	T 'SAL	11	15	43	50	1147	1338
BAYAN	SCOME					0.27549	Kayah	\$(tint					6. 14616

## VERIFICATION OF 2 HOUR CEILING FORFCASTS OFFUTT AFR. OMANA. NEBRASKA THE VERIFICATION CRITERION IS THE BRYAN SCORE

;

		PER	SISTE	NC L						T JBLA			
		O	BSERV	ED					(C	яѕекч	t O		
ORE-	ı	2	3	4	5	TGTAL	FORE~ CAST	ı	2	)	4	5	TOTAL
ì	ı	ı	ı	0	0	1	1	0	0	0	1	8	9
2	0	21	2	4	1	28	2	0	21	3	2	4	30
- 3	c	2	9	ı	2	14	3	0	5	9	5	3	2.5
4	0	3	2	60	26	91	•	0	2	2	54	29	87
5	c	4	2	20	532	558	•	1	3	5	23	517	546
OTAL	ı	31	16	85	561	694	TOTAL	1	31	16	85	561	894
BRYAN SC	ORE				o.	.59696	BRYAN SC	ORE				Ç.	<b>3966</b>
C. IMAE										GROUP	ING		
CLIPAN	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				<b>0, , L</b> .,					OBSER	<b>AED</b>		
FORE- CAST	ı	2	3	4	5	TOFAL	FORE- CAST	1	2	3	4	5	TOTAL
1	0	0	0.	1	0	ı	. 1	1	1	0	0	0	2
2	1	2.2	3	3	ı	30	2	0	71	3	5	1	30
3	0	2	9	ı	2	14	3	0	1	9	0	1	11
4	C	3	2	60	26	41	4	0	5	2	65	65	137
5	e	4	î	20	532	558	5	¢	3	2	15	494	514
TOTAL	1	31	16	85	561	694	TOTAL	1	31	16	85	561	494
BRYAN S	CORE				Ć	0.59717	BRYAN S	CORF				0	.59553
	kosti	: CON'	. •	CY PI	REGNOS	15	,	WL I I P	:LE D!	:3CF []	CENAN	T ANALY	sts
			GAS.							tif SE	CAED		
FORE- CAST	ı	2	3	•	5	TOTAL	FORE- CAST	t	2	3	4	5	TOTA
1	¢	0	o	ð	0	o	t	t	1	ì	C	0	š
Z	ı	22	3	•	1	31	2	0	22	3	•	2	91
3	e	?	9	1	2	14	3	0	1	6	1	. 1	Ÿ
4	C	5	4	73	149	231	4	Ç	6	h	68	59	1 19
5	o	2	0	7	409	418	į.	σ	1	0	13	499	512
TOTAL	1	31	16	н5	561	694	10141	1	31	16	5 5	5 561	694
	<b>500</b> 48					0.57176	****	SC 1134				1	0.61755

# VERIFICATION OF & HOUX EFFLING FORECASTS OFFUTE AFA, CHAMA, MEBRASKA THE VERIFICATION CRITERION IS THE MRYAN SCORE

PERSISTENCE

SUBJECTIVE

. . .

.D	
4 5	TOTAL
1 4	9
3 5	24
a 5	5.8
36 29	71
15 495	520
64 538	453
•	C.31798
NC VED	
4 5	TOTAL
2 2	8
2 6	Э
1 0	1
45 419	457
	138
64 538	653
	0.00312
INANT ANAL	.4515
VED	
4 5	TOTAL
0 5	
3 3	
1 1	
50 51	
10 451	465
64 538	652
	1 4 3 5 d 5 36 29 16 495 64 538  NC FED 4 5 2 2 C 1 0 45 419 14 117 64 538  INANT ANAL VED 4 5 0 2 3 3 1 1 50 31

#### VERIFICATION OF 6 HOUR CEILING FORECASTS OFFUTT AF6. OMAHA, NEBERSKA THE VERIFICATION CRITERION IS THE BRYAN SCORE

SUBJECTIVE

OBSERVED

PERSISTENCE

OBSERVED

ert.

FORE- CAST	1	2	3	4	5	TOTAL	FOI CA	RE- ST	1	?	3	4	5	TOTAL
1	ì	v	0	ı	1	3		ı	0	2	o	ł	6	•
2	1	1	6	3	9	26	,	2	1	5	5	5	5	21
3	0	2	4	•	4	14		3	0	ž	6	9	5	22
4	0	4	3	35	38	80		4	1	3	3	36	38	81
5	0	3	6	33	498	541		5	0	4	5	25	497	531
TOTAL	5	16	19	76	551	664		TAL	2	16	19	76	551	664
BRYAN S	CORE				0	. 32336	8R	YAN SI	CORE				(	0.32811
CL [MA]	rotogi	CAL E	XPECT:	ENCY	OF PER	ISISTENCE				•	GROUP	ING		
		1	OBSER	VED							OBSER	VED		
FURE- CAST	ı	2	3	4	5	TOTAL		RE-	1	2	3	4	5	TOTAL
1	0	ı	0	0	0	1		1	2	ı	0	2	0	5
2	2	3	6	4	10	25		2	0	0	0	0	0	0
3	0	Ú	0	0	0	0		3	0	3	5	2	5	15
4	0	9	7	39	42	97		4	0	9	8	39	47	103
5	0	3	6	33	499	541		5	0	3	6	33	499	541
TOTAL	2	16	19	76	551	664	to	TAL	5	16	14	76	551	664
BRYAN :	SCORE				(	0.29762	86	YAN S	CORE					0.31957
	LUNO	CONT	INGEN	CY PR	OGNOS I	s		M	JLT TPL	.E 01:	SCRIM	INANT	iNaL'	4212
		(	DBSER	VED						(	38564	4ED		
FORE- CAST	1	2	3	4	5	TOTAL	FO CA	RE- ST	1	2	3	4	3	TOTAL
ì	٥	0	0	0	o	o		1	0	ō	0	ı	1	2
2	2	2	3	4	8	19		?	2	7	9	7	6	31
3	0	ø	0	0	C	0		3	9	0	0	3	2	5
4	c	12	12	57	137	219		4	0	7	9	53	100	163
5	e	2	4	15	496	427		5	0	2	1	17	442	457
TOTAL	2	16	19	76	551	864	TO	TAL	2	16	19	76	551	664
PRYAN :	SCORF				Ć	32902	88	YAN S	CORE					0.37238

#### VERIFICATION OF 2 HOUR VISIBILITY FORECASTS OFFUTT AFB, OMAMA, NEGRASKA THE VERIFICATION CRITERION IS THE BRYAN SCORE

PERSISTENCE

SUBJECTIVE

4

		PERS	SISTE	AC C					30	04.4.	• • •		
		GE	SERV	FO					0	BSERV	ED		
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
ı	3	a	0	С	o	3	1	3	0	0	0	ı	4
2			0	1	3	8	2	0	σ	o	1	C	ı
3	0	3	6	4	4	17	3	0	5	5	5	6	21
4	0	0	8	6	3	22	4	0	3	7	8	14	32
5	2	ı	7	10	624	644	5	2	0	9	7	618	636
TOTAL	5	ė	21	21	639	694	10TAL	5	5	21	21	639	694
BRYAN S(	,ORE				0.	35582	BRYAN SC	ORE				0.	29999
CLEMAT	DLOG1¢	AL EX	PECTE	NCY (	of Pers	SISTENCE				SROUP			
	TOTAL  1							1	DBSER	VED			
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
1	ý	0	0	0	o	3	1	1	0	٥	0	0	1
2	0	n	0	0	0	0	2	1	ı	0	0	0	2
3	0	7	6	5	7	25	3	0	3	7	3	36	49
4	0	0		6		2.2	4	2	4	10	11	135	162
5	2	ı	7	10	624	644	5	1	0	4	7	46#	480
TOTAL	5	8	21	21	639	694	TOTAL	÷	8	21	21	639	694
BRYAN S	CORE				0	.28366	BRYAN S	CORE				C	.29433
	CHUJ	CONT	INGEN	CY PR	OGNOSI	s	*	ULTIP	LE DI	SCRIM	! PANS	T AMALY	<b>51</b> 5
			OBSER	VED						OBSER	VED		
FORE- CAST	ı	2	3	4	5	JATOI	FORE- CAST	1	2	3	4	5	TOTAL
1	0	0	0	0	0	0	1	3	0	0	0	1	4
	2	Q	0	0	2	4	2	0	0	0	0	0	0
3	G	7	5	5	5	22	3	0	7	8	7	13	35
4	2	ı	15	14	96	128	4	1	1	11	10		58
5	1	0	1	2	536	540	5	1	0	5			597
TQT AL	5	8	21	21	639	694	Tr AL	5	8	21	21	639	694
RRYAN :	SEORE				1	0.31877	BRYAN S	CORE					0.38221

## VERIFICATION OF 4 HOUR VISINILITY FORECASTS OFFUIT AFH. OMAHA, NERRASKA THE VERIFICATION CRITERION IS THE HRYAN SCORE

PERSISTENCE

DUSERVED

HRYAN SCORE

0.39584

SUMJECTIVE

OBSERVED

		٠,											
FORE- CAST	ı	2	3	4	5	FOTAL	FORE~ CAST	ı	2	1	•	5	JATEL
Ł	•	C	0	0	o	3	1	7	9	0	0	o	?
2	1	ı	0	0	4	6	,	1	0	5	0	0	3
i	0	ı	7	6	4	18	3	1	ı	3	5	11	21
4	C	ì	4	>	12	22	4	0	4	4	6	16	30
5	٥	2	7	19	616	644	5	0	ð	9	14	609	637
TOTAL	4	5	18	30	636	693	TOTAL	4	5	1.8	10	6 36	693
ARYAN S	CORE				0.	.29501	BRYAN SC	ORE				Q.	. 20000
CL 1#AT	nraeic	AL E	XPECT!	EHCA	OF PER	SISTENCE			1	GROUP	ING		
			OBSER	VED					(	OBSER	vED		
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	ì	2	3	4	5	TOTAL
1	3	0	o	o	c	3	1	1	0	0	0	o	ı
2	0	o	0	0	C	0	2	0	v	0	0	5	2
3	1	2	7	6	8	24	3	2	2	5	6	36	51
4	0	ı	4	5	12	2?	4	1	2	7	18	200	228
5	c	2	7	19	616	644	5	0	1	6	6	398	411
FOTAL	4	5	18	30	636	693	TOTAL	4	5	18	30	636	693
HRYAN S	CORE				o	•27695	BRYAN S	COHE				0	.33181
	LUND	CONT	I YGEY	CY P3	OGNOSI	s	м	UL I IPL	.E 91	SCR I M	IWAWI	ANALY	\$15
			OBSER	Λ£υ						06569	VE D		
FORE- CAST	1	2	3	4	5	TOTAL	FURE- CAST	1	2	3	•	5	TOTAL
1	¢	0	e	J	c	o	1	3	0	0	Ů	1	4
2	7	c	0	c	3	5	2	o	ð	0	0	1	1
3	2	?	1	ė	5	22	3	e	0	4	ñ	13	25
4	c	3	7	15	48	73	4	1	5	13	15	101	1 15
5	(;	0	4	1	SHC	593	5	0	ð	1	1	250	52#
101 AL	4	5	lo	<b>3</b> C	636	631	TOTAL	4	5	1 %	10	636	691

HRYAN SCHAF

0.164 4

#### ..RIFICATION OF C HOUR VISIPILITY FORECASTS CEFUIT AFR. OMAHA, NEURASKA THE VERIFICATION CRITERION IS THE BRYAN SCORE

		PFF	25151	+Ct					51	JHJEC.			
		(	38SEK	VEC					1	D45EP1	VFD.		
FIRE- CAST	1	,	3	4	5	TOTAL	FORE- CAST	ı	2	\$	4	5	TOTAL
1	3	0	c	O	С	3	1	o	3	о	J	c	0
2	c	o	ı	0	6	7	2	c	•	?	3	9	2
3	O	?	3	5	3	13	3	3	3	0	5	5	13
4	0	0	2	3	15	20	4	J	ì	1	4	12	18
5	c	0	8	15	552	575	5		t	11	16	559	545
TOTAL	3	2	14	23	576	61 A	TOTAL	3	2	14	23	576	618
	CORE				0	.18405	HRYAN S	CORE				O	. 08495
BRYAN S													
		AL EX	KPEC TI	ENCY	OF PER	SISTENCE			(	SRUUP	ING		
			KPECTI JBSER'		OF PER	SISTENCE				GRUUP DASEPI			
CL IMAT					OF PER	SISTENCE	FCRE- CAST	1				5	TOTAL
	0L0G1C	ſ	JBSERY	vED				1	(	DASEPY	vFD	5 C	TOTAL
CLIMAT FORE— CAST	1 0F0@1C	2	785ER1	vED 4	5	TOTAL	CĀSĪ		2	) 3	VFD		
CLIMAT FORE- CAST	1 OFOCIC	2	785ER1 3 0	vEN 4 0	5	TOTAL	CĀST I	1	2	3 0	vF 0 • 0	c	1
CLIMAT FORE— CAST 1 2	c 1 0r00tc	2 0 0	785ER 9	vED 4	5 0 0	TOTAL C O	CĀST 1 2	1	2 0 0	3 0 0	vFD •	c 3	1
CLIMAT FORE- CAST  1 2 3	c c 1	0 0 2	785ER1 3 0 0	vED 4	5 0 0	TOTAL C O 25	CĀST 1 2 3	1 0 2	2 0 0	0 0 0	vFD	C 3 28	3 45
CLIMAT FORE- CAST  1 2 3 4	0 0 0 0	2 0 0 2 0	3 0 0 4 9	VED 4 0 0 > 13	5 0 0 11 288	TOTAL C O 25 310	CĀSŤ 1 2 3 4	1 0 2 0	0 0 1	3 0 0 6 5	vFD o c a e	C 3 28 66	1 3 45 60

	LHND	CONT	INGEN	Y PR	OGNOS I	s		MULTIPL	E CI	SCH I M	IMANI	ANALY	\$15
		(	38SE41	13V					1	DRSER	۷ŧ ۲		
FORE- CAST	ı	2	3	4	5	TOTAL	FORE CAST		2	3	4	5	FOTAL
1	c	0	e	ú	0	o	1'	1	υ	ç	c	1	2
2	0	0	0	0	С	0	2	0	0	1	1	3	5
3	3	2	4	5	9	23	3	2	ı	3	4	16	26
4	0	٥	3	10	58	71	4	9	t	7	12	55	15
5	С	า	7	8	599	524	•	0	c	3	6	501	510
1014L	,	2	14	23	515	614	TCTA	L 3	2	14	23	576	618
PRYAN	scaki				(	26732	40 Y A	4 SCORE				,	. 1064.

### VERIFICATION OF 2 HOUR CEILING CORECASTS RANDOLPH AFH, SAN ANIONIO, TEXAS THE VERIFICATION CRITERION IS THE BRYAN SCORE

		PE	R\$151	ENCE					S	NATEC	3411		
			JBSER	4fL						OHSFR	VFD		
FORE- CAST	1	2	3	4	5	JATOI	FORE- LAST	ı	2	3	4	5	TOTAL
ı	4	2	4	1	e	11	1	ì	1	2	1	1	6
2	c	4	7	2	ì	14	2	2	6	6	5	0	16
3	o	6	74	27	16	123	3	ı	6	75	28	16	126
4	c	v	14	52	1 H	84	4	e	ı	19	48	27	95
>	^	2	14	19	425	463	5	r	Q	. 1	22	416	443
TOTAL	4	14	113	101	460	845	TOTAL	4	14	113	101	460	692
URYAN S	<b>ር</b> ጥ ቂ ξ				0	.60176	ARYAN S	CORE				o	.58456
îc [MA]	DL061				OF PER	SISTENCE				GROU.	146		
			ORSFR	VED						OHSER	VED		
CAST	ι	2	,	4	5	TOTAL	FORF- CASI	1	2	3	4	5	TOTAL
1	4	2	4	i	o	11	1	2	3	3	o	o	8
2	¢	1	1	э	c	7	2	0	1	3	1	0	5
3	c	3	96	79	17	135	3	2	8	79	25	65	179
4	c	J	14	52	18	g c	4	0	2	26	63	57	148
5	•)	?	14	17	425	460	5	0	0	2	12	338	352
TOTA	4	14	113	101	÷6C	69?	FOTAL	4	14	113	101	460	692
PRYAN S	C(-RF				o	.62043	BRYAN SO	CORE				0	. 57693
	LUND				BUNCS I	s	M	ULTIP	LF 01	SCHIP	INANT	ANALY	515
			ひゅうをお	ven						OHSEP	VED		
FURF- CAST	1	,	3	4	5	INIAL	FORE- CAST	1	2	3	4	5	TOTAL
ì	c	e	•	:	¢	v.	1	•	3	5	1	o	13

FORECAST

1 2 3 4 5 TOTAL

1 0 0 6 6 1 C ...

1 4 4 7 2 1 20 7 7 3 1 3 C 0 4

3 1 6 74 76 14 122 3 0 10 86 40 49 165

4 7 0 24 56 11 173 4 0 0 17 53 30 100

5 1 2 4 15 354 327 5 0 0 2 7 381 39C

TOTAL

HEYAN SC 41 0 0 692

# VERIFICATION OF 4 HOUR CEILING FORECASTS RENDUL ON AFB, SAN ARTUNIO, TEXAS THE VERIFICATION CRITERION IS THE HRYAN SCORE

		PER	SISTE	NCE						SU	JEC I	[ A £		
			BSERV							n	HSERV	FO		
FURE- CAST	ı	2	3	4	5	TOTAL		FORE- CAST	ι	2	3	4	5	JATOI
ı	o	4	4	2	1	11		ı	9	0	o	ι	0	o
2	0	2	4	0	2	13		2	0	2	ș.	1	0	8
3	0	3	39	29	49	120		3	0	6	45	24	7	82
4	0	ı	11	46	26	78		4	c	ı	19	48	47	115
5	0	0	18	15	405	458		5	O	1	12	33	429	475
TOTAL .	0	10	81	106	483	680		TOTAL	0	10	91	106	463	686
ERYAN S	CORE				0	.36128		BRYAN S	CORE				0	.44730
TAMI JO	010610	AL E	(PECT	ENCY	OF PER	SISTENCE				Ć	GRBUP	ING		
										(	385ER	VEO		
FORE~ CAST	1	2	3	4	5	TOTAL		FORE- CAST	1	2	3	•	5	TOTAL
1	0	4	4	2	1	1 t		1	C	3	0	0	ı	4
2	0	0	2	۵	0	2		2	0	1	3	>	0	6
3	0	4	39	16	7	56		3	0	•	40	27	89	160
4	0	2	18	53	70	143		4	0	2	27	61	87	177
5	0	0	18	35	405	458		5	0	0	11	16	306	333
TOTAL	0	10	61	106	483	680		TOTAL	0	10	81	106	463	680
BRYAN :	SCORE				Ć	.40606		BRYAN :	SCORE				C	35903
	L.UND	CONT	INGEN	CY PR	:0GNO\$1	s	•	1	WETTP				r Amaly	rsis
			ORSEA	VED							OUSER	OBV		
FORE- CAST	1	2	3	4	5	191AL		FORE- CAST	i	z	3	4	5	TOTAL
1	o	0	0	0	0	e		ı	0	3	1	0	0	4
2	c	5	6	Z	1	14		2	0	0	0	0	0	0
3	0	3	43	?7	56	129		3	0	6	53	40	56	155
4	0	2	13	51	62	134		4	0	1	15	52	64	112
5	0	0	13	76	364	403		5	3	3	12	14	363	389
TOTAL	Ģ	10	81	lue	483	680		TOTAL	¢	19	ĄŞ	106	463	640
PAYRB	SCORE					3, 59797		PAYAN	\$CORF					0.41142

### VERIFICATION OF 6 HOUR CEILING FORECASTS RAHDOLPH AFB, SAN ANTONIO, TEXAS THE VERIFICATION CRITERION IS THE ƏRYAN SCORE

		PE	25151	ENCE					St	UH JEC 1	IVE		
			UnSER	VFD					(	DBSERI	/ED		
FURE- CAST	1	2	3	4	5	TOTAL	FORE- CASI	i	2	3	4	5	TOTAL
1	o	1	3	5	2	11	t	o	0	0	1	0	1
2	С	ı	6	3	3	13	2	1	2	6	ı	0	10
٤	2	6	29	23	59	119	3	ŧ	7	48	21	26	103
4	0	5	18	28	30	78	4	0	1	13	38	38	96
5	1	3	24	40	389	457	5	ì	3	7	38	419	468
TOTAL	3	13	80	99	483	678	TOTAL	3	13	80	99	483	678
eryan s	CORE				0	. 2435?	BRYAN SI	CORE				o	.40759
CLIPAT	OLOG10	SAL E	KPECT	ENCY	OF PER	SISTENCE			(	GROUP	ING		
		(	DBSEK	vEv						DBSER	/ED		
FORE- CAST	ı	2	3	4	5	ISTAL	FURE- CAST	ı	2	3	4	5	TOTAL
1	0	0	1	0	o	ı	1	e	0	0	2	0	2
2	0	э	5	O	o	2	2	0	1	3	3	3	10
3	2	8	30	25	11	76	3	2	4	32	26	87	151
4	0	2	23	34	83	142	4	1	5	25	41	99	171
5	1	3	24	40	369	457	5	0	3	20	27	294	344
TOTAL	3	13	80	99	483	678	TOTAL	3	13	80	99	443	678
BRYAN S	CORE				O	.26791	BRYAN SC	ORE				. 0	-21912
	LUNG				UGNOST	s	м	if i i bi				ANALY	S 1 S
		(	DBSER	νEυ					(	)PSERV	/E0		
FORE- CAST	1	2	3	4	5	TOTAL	FORE— CAST	1	2	3	4	5	TOTAL
ı	າ	0	o	G	c	c	1	0	ı	2	2	c	5
2	၁	2	5	b	4	19	2	0	0	0	0	0	0
3	1	5	16	8	29	61	3	2	10	50	42	55	159

TOTAL

CHYAN SCORE

37

22

13 359

39 483

91

50

181

4:7

678

0.25918

TOTAL

HRYAN SC HI

18

10

89

95

16 333

99 483

152

362

678

0.33524

## VERIFICATION OF 2 MODE VISIBILITY FORECASTS RANGE OF AFR. SAN AUTOMO. TEXAS THE VERIFICATION CRITERION IS THE MRYAN SCORE

			IS I STA							JAJEC 1 185FR1			
FORE- CAST	ì	,	3	4	5	TOTAL	FORE- CASE	1	2	3	•	5	TOTAL
ì	4	0	3	ı	4	12	1	1	1	2	G	o	4
.?	1	Į	2	1	c	5	7	,	2	1	c	2	5
3	3	9	,	3	5	Į a	3		3	8	6	7	25
4	6	ì	6	4	7	16	4	n	i	8	6	13	28
5	1	2	٠,	15	626	649	5	2	Z	4	12	620	640
1A FCT	7	4	23	74	642	70?	TOTAL	ů	4	23	24	642	702
BRYAN S	CURE				0	. 33109	BRYAN S	CrqE				0	. 31022
CL IMAT	ornett	CAL E	XPECT	ENCY	OF PER	SISTENCE				GKOUP	ાયક		
			OBSER							CHSER	VED		
FORE- C451	1	2	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
ŝ	4	0	5	1	4	12	1	3	0	3	3	18	27
	С	o	1	o	С	i	ş	ı	0	ı	ú	o	2
\$	4	Į	7	4	5	21	3	3	1	,	5	31	49
4	ζ,	1	8	1	167	1#3	4	1	3	9	11	89	113
5	1	2	4	12	466	485	5	1	0	ı	:	504	511
FOTAL	9	4	23	24	647	102	TOTAL	7	4	23	24	642	702
BRYAN S	CORE				o	.29556	RHYAN S	COME				o	.42319
	LUND	CONT	INGEN	CY PA	OGNOS 1	s	P	ալոր	. F G1	SCR [ =	IHAPI	ANALY	\$15
			OBSER	VEC.						OBSF×	VED		
FORC- CAST	1	S	3	*	5	TOTAL	FORE- CAST	1	2	3	•	5	JATGT
1	5	ı	5	2	4	1.7	. 1	2	0	2	2	2	a
2	o	0	c	0	o	^	7	1	0	0	G	0	ı
3	3	C	7	4	36	50	3	3	1	13	6	19	42
4	1	3	10	15	127	156	4	3	3	A	13	80	107
•	c	9	ı	3	475	479	5	e	J	0	3	541	544
TOTAL	9	4	23	24	642	702	TOTAL	•	4	2)	24	647	792
BAYAN S	CORF				o	.49208	ARYAS S	CORF				o	.54667

#### VERSFICATION OF 4 HOUR VISIBILITY FORECASTS RANDOLPH AFR. SAN ANIONIO, TEXAS THE VERIFICATION CRITERION IS THE BRYAN SCORE

		PER	SISTE	HCE					Su	/8JEC1	lvŧ		
		0	BSERV	ED					(	385ER1	ED		
FORE- LAST	1	2	3	4	5	TOTAL	FCRE- CAST	ı	2	3	4	5	TOTAL
ì	1	o	2	1		12	1	o	၁	0	0	0	0
2	0	0	2	0	3	5	2	0	Q	0	6	1	1
3	O	o	4	3		15	•	٥	0	7	•	\$	14
4	0	0	4	2	12	1.6	4	0	b	4	3	13	20
5	0	0	7	8	617	632	5	1	0	8	7	659	645
LAFOL	ı	0	19	14	648	682	TOTAL	ı	0	19	14	648	682
BRYAN S	CORE				0	. 1 4 7 6 4	RRYAN SC	.O≉E				0.	. 21720
CLIKAI	0F0@10	IAL E	(PFCT)	EWCY	OF PER	SISTENCE				G# <i>O</i> UP	ING		
		(	065ER	VEC.						08588	v£ D		
FURE- CAST	1	2	,	4	5	TOTAL	FCRE- CAST	ı	2		4	5	TOTAL
1	1	9	2	1	6	10	t	ï	0	1	0	51	53
2	c	0	0	0	0	¢	2	9	3	1	ε	0	1
3	0	3	9	. 4	23	36	3	٥	9	5	4	28	37
4	0	ŋ	4	4	157	165	4	٥	0	10	5	113	128
5	o	G	4	5	462	471	5	0	0	S	5	454	463
TOTAL	t	0	19	14	6+8	£92	TOTAL	1	0	19	14	548	452

	LUND	CONT	INGEN	CY PR	GGNOSI	\$	M.	16 [ 196	E DI	SCR EM	1444	AMALY	515
		(	38566	450					(	CRSERI	/EG		
FORE- CAST	1	ż	3	Ļ	5	10146	F GRE - CAST	ı	2	3	٠	5	TOTAL
ı	ç	o	3	о	5	5	1	ı	ა	1	0	1	•
2	0	•	9	ô	c	٠.	,	э	3	o	0	0	c
3	ì	0	5	4	23	31	3	9	J		4	30	42
•	G	9	10	4	195	214	•	3	0	1	8	110	125
5	c	1	ì	i	425	471	٩.	•	e	ı	2	5C7	510
TOTAL	1	3	14	14	648	662	TOTAL	t	э	19	14	548	682
PRYAN N	CP4E				r	.20537	MHYAM S	Zuri)				o	. 19454

BRYAN SCORE

0.15448

0.22019

BRYAN SCORE

#### VERIFICATION OF 6 HOUR VISIBILITY FORECASTS PANNOLPH AFR, SAN ANTONIO, TEXAS THE VERIFICATION CRITERIUM IS THE BRYAN SCORE

		ρĘЯ	\$1511	FYCE					Şt	INJEC!	146		
		ſ	BSFR	<b>4</b> F D					(	'BSER'	VFD		
FORE- CAST	i	2	3	4	5	FOTAL	FP96- 1451	1	2	3	4	5	TOTAL
ı	0	Ç	2	3	7	12	1	0	G	0	0	1	i
2	0	0	2	O	3	5	>	0	0	0	0	ı	t
3	0	ì	0	1	13	15	3	1	0	4	5	7	17
4	5	0	ŗ	2	16	t o	4	O	1	1	1	13	16
5	ı	1	10	10	61C	632	5	c	ł	9	10	627	647
SOTAL	3	2	14	16	649	682	JATOT	1	2	14	16	649	682
BRYAN S	CORE				o	.03458	RPYAN S	CORE				6	. 10777
CLIKATI	OF B B 1 C	AL EX	PECT	ENCY	OF PER!	SISTENGE			ć	ROUP	ING		
		C	BSERY	786					(	BSERI	/EO		
FORE- CAST <	ì	s	3	4	ĸ,	TOYAL	FORE~ CAST	i	2	3	4	5	TOTAL
1	٥	0	0	1	0	1	1	0	٥	0	0	10	10
2	0	¢	0	0	0	၁	2	0	3	0	1	18	19
3	o	ì	4	4	31	40	3	1	2	5	B	67	83
4	1	1	7	11	295	315	4	0	0	7	3	95	105
5	C	0	3	G	±23	326	5	0	0	2	4	459	465
TOTAL	1	Ş	14	16	649	582	TOTAL	ı	5	14	16	549	682
BRYAN S	CORE				0	. 17352	BRYAN S	CORE				ō.	.09268
	LUND	COMT	ingen	C4 bt	1204051	s	,	IULT (P)	.E D1	SCRIN	INAN	YJAKK 1	\$15
		1	NUSEP	VED						r3250	GĐŁ		
FORE- CASI	i	2	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
1	0	0	0	e	9	c	1	o	3	2	2	6	10
2	0	o	2	C	1	1	2	0	0	¢	0	ı	1
3	0	i	A	5	131	145	3	0	ı	6	5	79	91
4	1	1	4	11	917	534	4	ι	ı	5	7	119	133
4	0	0	0	ð	G	0	5	0	ŷ	1	2	444	447
TOTAL	1	2	14	16	644	683	TOTAL	ı	5	14	16	649	682
BRYAN S	CCAF				c	.09566	BRYAN S	3803				o	. 19255

### VERIFICATION OF 2 HOUR CFILING FORECASTS "COUTRE AFB, WRIGHTSTOWN, N.J. THE VERIFICATION CRITERION IS THE HRYAN SCOPF

		PE	15151	ENCE					\$1	JBJEC	3417		
		(	)ASEA	VED					•	UBSER	vED		
FORE- CAST	1	Z	3	4	5	FOTAL	FORE- CAST	ì	2	3	*	•	TOTAL
1	8	3	1	o	ı	13	1	5	ı	1	o	4	11
2	3	13	3	5	c	21	3	•	10	5	0	2	70
3	0	5	22	6	3	36	3	5	11	16	8	6	43
4	c	1	9	29	25	64	4	0	1	13	33	23	70
5	3	ı	4	29	440	×17	3	4	0	4	25	434	467
TOTAL	i4	23	39	66	469	611	FOYAL	14	23	39	56	469	611
BRYAN S	CORE				o	.44629	ROYAN S	CORE				٥	.40005
CLIMAT	0F661	CAL E	KPECT	ENCY	OF PER	SISTENCE				GKOUP	14G		
		•	18SEP	VFD						OHSER	VEU		
FORE- CAST	ı	2	3	4	5	TOTAL	FORE~ Cast	1	2	3	4	5	TOTAL
1	8	3	ı	0	1	13	1	7	3	1	o	;	12
2	2	5	2	1	C	13	Ž	4	12	3	1	o	20
3	1	10	23	7	3	46	3	G	6	25	9	7	42
4	0	1	9	29	25	64	4	ı	2	9	41	68	121
5	3	1	4	29	440	47.	5	2	0	ı	15	398	416
TOTAL	14	23	19	66	469	611	TOTAL	14	23	39	66	469	611
BRYAN S	CORE				ø	.42148	HRYAN S	CORE				0	.48085
	LUND	CONF	INGEN	CY PR	ockosi	s	•	96139	.E 01:	SCRIM	INANT	ANALY:	s 1 s
		ı	OBSER	√E0					(	OHSER	VED		
FORE- Cast	1	2	3	4	5	TOTAL	FOME- Cast	ì	2	3	4	5	TOTAL
ı	C	0	0	0	٥	o	1	10	3	ı	1	4	19
2	12	17	4	4	4	41	2	2	12	3	ı	o	16
3	0	4	25	11	8	48	3	1	6	25	5	2	ρĘ
4	C	1	8	25	20	51	4	0	í	8	45	46	100
>	-	1	2	29	437	471	5	1	1	2	14	417	435
JATOT	14	23	39	46	44.4	oti	TOTAL	14	23	39	56	469	611
887A4 S	CORF				0	, 39891	2 PAYRH	CORE				0	. 5 15 14

# VERIFICATION OF 4 HOUR CEILING PORFCASTS MCGUIRE AFB, WRIGHTSTOWN, N.J. THE VERIFICATION CRITERION IS THE HRYAN SCORE

		PERS	SISTE	YC F					SU	1 <b>33</b> £ 8	1 4 6		
		1)+	(2£54)	En					0	BSERY	60		
ORE- AST	1	2	3	4	5	1014-	FURE- CAST	ı	2	3	4	5	TOTAL
ı	0	4	ž	0	3	4	ı	0	3	c	0	2	5
Z	0	8	7	2	1	1.9	2	ı	4	•	ı	1	11
3	1	2	16	4	4	21	3	O	7	14	9	5	35
4	0	5	6	16	29	56	•	Ō	2	9	23	28	62
5	า	1	į	27	374	409	5	0	4	11	16	375	406
TOTAL	1	20	38	49	411	519	10(AL	1	23	38	49	411	519
BRYAN SC	ORE				0	. 30249	GRYAN SC	GRE				٥.	. 31666
CLIPATO	)LOG16	AL EX	(DEC1)	EMC Y	OF PER	SISTENCE			(	ROUP	14G		
		0	****	460					,	18SER	VED		
FORE- CAST	1	2	3	4	,	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
1	0	1	0	0	ı	7	1	0	4	2	0	1	7
2	0	4	2	0	0	6	2	O	8	4	ì	3	16
3	1	9	23	6	7	46	3	ı	2	15	5	3	26
4	0	5	6	16	29	56	4	G	5	14	31	98	148
5	0	1	7	27	374	609	5	9	1	3	12	306	322
TOTAL	1	20	38	49	*11	51+	TOTAL	ı	20	38	49	411	519
BRYAN S	CORE				d	.32126	BRYAN S	CORE				o	.32559
	LUND	CONT	INGEN	CY <b>P</b> !	lognos:	s	M	JLTIP				ANALY	\$15
		(	OGSER	AED						OBSER	ASU		
FORE- CAST	i	2	š	4	5	TOTAL	FORE— CAST	ı	2	3	•	5	TOTAL
1	0	0	0	3	0	e	į	0	3	2	0	7	12
2	0	7	8	1	6	2.5	2	0	7	1	0	0	3
3	1	7	19	7	3	31	3	1	11	22	11		49
4	e	5	8	37	148	198	•	0	1	10			84
7				4	254	262	5	0	1	3	9	356	369
5	3	1	3	•	• • • •						49	411	519

0.32591

BRYAN SCORE

HRYAN SCOPE

0.38280

### VERIFICATION OF 5 HOUR CEILING FORECASTS MCGUIRE AFB, WRIGHTSTOWN, N.J. THE VERIFICATION CRITERION IS THE BRYAN SCORE

SUBJECTIVE

PERSISTENCE

#3 F

		אטא	21211	.MCE					30	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	•••		
		C	BSERV	/ED					O	ir s f p v	FD		
FORE+ CAST	ı	2	3	4	5	107AL	FORS- CAST	1	2	3	4	5	19176
ı	0	0	3	0	6	y	1	3	1	1	1	3	6
2	2	2	6	6	2	18	2	1	4	4	Q	4	13
ġ.	ı	ь	8	7	6	28	3	ı	4	12	9	6	32
4	ı	5	9	le	23	56	4	2	3	6	31	34	98
5	1	2	5	32	368	408	5	ì	3	8	55	366	400
TOTAL	5	15	31	63	405	519	TOTAL	5	15	31	63	465	219
BRYAN SC	ORE				o.	.22799	BRYAN S	CORE				0.	, 34673
CL 14AT	OL DG I	CH E	XPSCT	ENCY	OF ™ER	SISTENCE				GRQUP	ING		
			Oaser	03 V						OHSER	VED		
FORE- CAST	ı	2	į	4	5	TOTAL	FORF- Cast	1	2	3	4	5	TOTAL
1	c	0	1	0	1	7	ĭ	0	0	2	e	ı	3
2	ż	1	1	2	C	6	7	ı	1	ş	2	ı	7
3	ı	7	15	11	13	47	3	0	5	9	5	9	28
4	ı	5	9	18	23	56	4	4	9	15	39	135	202
5	1	2	5	32	368	408	5	0	0	3	17	2 .9	279
TOTAL	5	15	31	63	405	519	TOTAL	5	15	31	63	405	519
PRYAN S	CORE				c	.26358	ARYAN S	CORE				o	.24674
	LUNO	CONT	INGEN	ICY P	ROGNOSI	\$	,	WL F I P	LE DI	SCRIM	INANI	T ANALY	<b>S</b> 1S
			OASER	LVED						OBSER	VED		
FORE- CAST	ı	2	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
ı	0	2	4	9	56	71	1	0	0	0	t	0	1
2	u	0	1	G	2	3	2	0	1	0	9	0	1
j	2	8	13	15	8	46	3	7	9	16	9	5	41
4	2	3	10	27	84	126	4	2	4	11	36	66	119
5	3	2	3	12	255	273	5	1	1	4	17	334	357
FOTAL	5	15	31	63	405	519	TOTAL	5	15	31	63	405	519
BRYAN S	CORE				(	0.18664	BEYAN	SCHRE				C	35599

## VERIFICATION OF 2 HOUR VISIBILITY FORECASTS MCGDIRE AFF. WRIGHTSTOWN, N.J. THE VERIFICATION CRITEPION IS THE BRYAN SCORE

PERSISTENCE

PRYAN SCORE

SUBJECTIVE

		P 5 4	21211	NUE					30	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	• • •		
		C	BSFRV	ED					O	BSERV	EÐ		
FORE~ CASI	ı	2	1	4	5	TOTAL	FORE- CAST	1	,	3	4	5	TOTAL
1	11	5	ò	0	o	16	t	6	5	3	o	0	14
2	2	6	6	ı	c	15	2	3	2	7	1	2	15
3	ì	4	37	10	6	5.8	3	2	7	41	14	9	73
4	0	0	22	21	11	54	4	2	0	20	25	31	78
5	0	ı	15	22	431	469	5	1	5	)	14	406	432
TOTAL	14	16	80	54	448	612	TOTAL	14	16	80	54	448	612
BRYAN S	CORE				0.	.52887	ARYAN S	ORE				0.	. 51 300
CLIMAT	1010616	AL E	(PECT	ENCY	OF PERS	SISTENCE			C	ROUP	146		
		(	BSERV	(E)					(	185ER	/E D		
FORE- CAST	1	2	3	4	5	TOTAL	F RE- CAST	1	?	3	4	5	TOTAL
ı	11	5	o	0	c	16	1	11	6	0	C	0	17
2	0	4	?	1	0	7	?	1	1	1	0	0	3
3	3	6	41	10	6	66	3	1	7	29	9	8	54
4	0	0	22	15	11	54	4	1	2	44	33	40	120
5	Ş	1	15	22	431	469	5	0	0	6	12	400	418
TOTAL	14	16	80	54	448	612	FOTAL	14	16	90	54	448	612
BRYAN S	SCORE				0.	.542?0	ARYAN S	CORE				0.	.51170
	LUNO				ROGHUSI	s	,	WL F 1P				T ANALY	'\$1\$
FORE-			OBSCR	461)			FORE-			ORSE	VEU		
CAST	1	2	3	4	5	TOTAL	CAST	1	2	3	4	5	FOTAL
1	C	0	٥	c	0	c	ı	11	4	7	0	o	27
2	11	٥	2	0	2	24	2	1	1	1	0	0	3
3	3	6	41	15	18	<b>e3</b>	3	2	5	43	14	8	72
4	C	٥	30	28	118	176	4	0	1	36	35	79	141
							_		_				***
5	¢	ı	7	! 1	110	329	5	0	0	3	5	36 l	369

BRYAN SCORE

0.58842

0.46042

#### VERIFICATION OF 4 HOUR VISIBILITY FORECASTS MCGUIRE AFB, WRIGHTSTOWN, N.J. THE VERIFICATION CRITERION IS THE ARYAN SCORE

136

289

514

0.41047

7 52 57 395

3

1

		PE	RSIST	ENCE					S	UBJEC	3411		
		ı	NBSER	٧Fŋ						OHSER	ven		
FORE- CAST	ı	2	3	4	5	TOTAL	FORE~ Casi	1	2	3	4	5	JATO1
1	ı	ı	7	2	1	12	1	i	1	1	1	1	5
5	1	3	4	3	2	13	?	Q	0	4	ι	3	8
3	0	0	19	14	14	47	3	ı	2	18	8	ç	38
4	ı	0	13	u	23	49	4	1	ı	20	18	34	74
5	0	3	9	21	355	394	5	0	3	9	24	348	387
TOTAL	3	7	52	57	395	514	TOTAL	3	7	52	5.7	395	514
HRYAN (	SCORF				(	3.28270	BRYAN	SCORE					0.29906
CLIMAT	010616	AL E	(PECT	ENCY	OF PER	SISTENCE				GRUUP	1NG		
		(	DBSER	ven						ORSER	٧ŧ٥		
FORE- CAST	i	2	3	4	5	FOIAL	FORE- CAST	1	2	3	4	5	TOTAL
1	С	0	2	o	1	3	1	ı	2	3	2	4	12
2	0	0	0	0	0	0	2	1	¢	0	0	2	3
3	2	4	28	19	16	69	3	1	2	19	14	20	56
4	ı	0	13	11	23	48	4	σ	0	23	22	77	122
5	r	3	9	21	355	394	5	0	3	7	19	292	321
101AL	3	7	52	51	395	514	TOTAL	3	7	52	57	395	514
BHYAN S	CORF				o	. 32339	ЯЧУАН	SCORF				(	0.28975
	しいもつ	CONT	NGFNO	(γ <i>ρ</i> α	nsnasi	s		40L11PL				AHAL Y	·\$1\$
		ſ	)ASFR\	/ED					(	)#25#C	/ED		
FORE~ CAST	ı	2	3	4	5	TOTAL	FCRE~ C451	t	2	3	1,	5	TOTAL
1	n	0	n	3	0	1	1	2	1	5	2	ì	11
2	l	1	6	2	1	11	2	2	0	0	G	Ċ	n
3	1	3	<b>?2</b>	20	21	7 3	3	ı	3	79	25	50	78

TOTAL

BRYAN SCORE

71

7 296

7 52 51 395

TOTAL

BRYAN SCORF

122

308

514

0.37715

## VERTIFICATION OF 6 MORE VISIBILITY FORECASTS MCGUIRE AFB, MATCHTSTOWN, Y.J. THE VERTEICATION CRITEPION IS THE BRYAN SCORE

			RSIST OHSER							)3tan			
FORE-	ı	2	17173EK 3	4	5	TOTAL	FORE- CAST			CBSFR			***
			,	Ī	,	TOTAL	CAN	1	?	3	4	•	TGTAL
l	С	1	3	3	5	12	1	o	1	2	1	ŧ	5
2	ı	1	4	3	4	1 5	2	1	i	4	¢	3	9
3	1	ı	12	12	21	47	3	2	1	6	4	9	55
4	2	0	7	16	23	49	4	0	1	13	17	36	67
5 TOTAL	1 5	1	11 37	19 53	365 418	397 51 <i>7</i>	5	?	0	12	31	369	414
	,	•	,,	,,	710	21.1	TOTAL	5	4	37	53	418	317
BRYAN S	CORE				0	.24223	BRYAN SC	ORE				0	. 19780
CLIMAT	01.061	CAL F	XPFC!	FNEY	UE DES	SISTENCE				2 40140	146		,
			NASER		J	313.4.102				GKOUP OKSEP			
FORE- CAST	1	2	3	4		TOTAL	FORE- CAST	1	2	3	•	5	TOTAL
ı	^												
2	0	1	1	0	ı	3	1	0	ì	0	2	1	4
3	2	2	0 17	0	0 25	0	\$		0	Ł	1	1	3
4	3	0	12	29	148	61	3	1	?	14	16	43	76
5	0	1	1	47	244	261	5	3	0	17	21	71	112
TOTAL	5	4	37	53	418	517	TOTAL	1 5	1	5 37	13 53	302 418	322 517
BRYAN S	CORE				o	.76196	BRYAN S	-OBE				•	.23407
					·		00 min 31	JUNE				U	.23907
	LUND	CGAT	INGENI	CY P	OGNOST	s	M	ILT IPL	£ 015	SCRIM	INANT	ANALY:	515
		(	DUSER	VED					(	CRSER	/E0		
FORE- CAST	ı	2	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
1	0	0	O	0	0	0	1	0	ı	1	o	0	2
2	0	0	ż	t	c	3	2	0	0	0	6	0	0
3	2	4	23	27	63	119	3	3	2	22	31	46	104
4	2	0	ä	21	109	140	4	1	ı	14	19	114	149
5	t	0	4	4	246	255	5	1	o	c	3	258	262
101 AL	5	4	37	53	418	51.7	TOTAL	5	•	17	53	418	517
PRYAN S	CORF				0.	. 25447	ARYAN SC	.ne e				0.	. 24 755

#### VERIFICATION OF 3 HOUR CEILING FORECASTN ATLANTIC CITY, N.J. AIRPORT THE VERIFICATION CRITERION IS THE PERCENTAGE OF HITS

		PE	RSIST	ENCE					S	JA JEC	341		
		(	OHSER	VED					(	OHSEK	VE D		
FORE- CAST	1	Ş	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
ı	2	6	3	0	3	14	1	0	2	0	0	0	2
2	0	16	4	2	4	اد	2	3	16	7	2	6	34
3	1	3	11	8	3	26	3	C	11	13	5	9	38
4	ı	2	5	12	11	31	4	0	1	6	17	19	43
5	1	5	4	16	553	579	5	5	2	6	14	540	564
TOTAL	5	32	32	38	574	681	TOFAL	5	32	32	38	574	166
NUMBER	0F H1	TS 5	94	PER	CENTAG	E 0.8722	NUMBER (	3F HI	TS 5	86	PER	CENTAGE	0.8605
CLIPAT	OL OG 10				OF PER	SISTENCE				GROUP			
		(	DRSER	VED					,	ÚBSER	AFD		
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
1	2	3	0	o	1	6	1	1	6	2	o	1	10
2	0	12	6	0	2	20	2	ì	6	6	1	4	18
3	1	7	14	10	5	37	3	0	10	13	6	9	38
4	0	1	2	5	7	15	4	i	5	5	10	5	26
5	2	9	10	23	559	603	5	2	5	6	21	555	589
TOTAL	5	32	32	38	574	681	TOTAL	5	32	32	38	574	681
NUPBER	OF 1-1	15 5	92	9 E F	CENTAG	E 0.8693	NUMBER C	)F HI	TS 5	85	PER	CENTAGE	0.8590
	LUND	CONT	INGEN	CY PR	OGNOS1:	s	му	(T]PI	.E 015	CRIN	NANT	ANALYS	15
		ť	DBSERV	131					C	BSERV	EO		
FORE- CAST	ı	2	3	4	5	TOTAL	FORE- CAST	ı	2	3	4	5	TOTAL
1	2	22	12	2	1	45	ì	1	4	3	0	2	10
2	0	0	0	С	0	<b>ે</b>	2	0	13	6	1	1	21
3	¢	2	ь	5	7	17	3	ı	5	11	6	4	27
4	2	3	9	22	85	121	4	1	3	5	9	6	23
•										_			
,	1	5	3	9	48C	499	5	2	8	7	55	561	600

NUMBER OF HITS 595

PERCENTAGE 0.8737

NUMBER IS HITS STEEN PERCENTAGE 0.7518

## VERIFICATION OF 5 HOUR CEILING FORECASTS ATLANTIC CITY, N.J. AIRPORT THE VERIFICATION CRITERION IS THE PERCENTAGE OF HITS

SUBJECTIVE

PERSISTENCE

		PE	,31)	EULE					20	JHJEC	1176		
		•	OBSER	AEC					(	JB SER	VED		
FORC- CAST	1	2	3	4	5	TOTAL	FORE- CAST	ı	2	3	4	5	TOTAL
i	0	1	2	2	9	14	1	0	ı	0	0	0	1
2	1	11	6	5	6	30	?	3	11	8	4	3	29
3	1	3	5	10	5	24	3	ı	8	8	13	10	40
•	1	4	6	11	9	31	4	٥	0	6	18	18	42
5	2	0	5	25	520	552	5	l	0	2	18	518	539
TOTAL	5	20	24	53	549	651	TOTAL	5	20	24	53	549	651
NUMBER (	OF HI	rs 5	<b>\8</b>	PEN	CENTAG	E 0.8413	NUMBER OF	: н	TS 5!	55	PER	CENTAG	E 0.8525
GLIMAT	DLOG [	CAL E	XPECT	ENCY	OF PER	SISTEMCE			,	GROUP	ING		
			OBSER	VED						ORSER	VED		
FORE- CAST	ı	2	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
1	0	1	ı	0	4	•	1	0	1	2	2		13
2	1	•	4	7	3	19	2	0	•	7	5	3	24
3	1	6	7	13		35	3	1	5	2	5	5	1.0
4	0	0	0	0	0	c	4	Q	2	5	5	1	10
5	3	4	12	38	534	591	5	4	3	11	36	532	586
TOTAL	5	20	24	53	549	451	TGTAL	5	20	24	53	549	451
NUPBER	OF HI	rs s	50	PEI	CENTAG	E 0.8449	NUMBER OF	: Ht	TS 54	<b>18</b>	PER	CENYAG	E 0.8418
	LUND	CONT	INGEN	CY PI	1204961	s	MUI	.T1P	LE DI:	SCRIM	ixanț	ANALY	SIS
			OBSER	VED					(	DOSER	VED		
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	ı	5	3	4	5	TOTAL
1	1	13		7	15	44	1	0	ı	2	2	•	13
5	2	7	14	27	79	129	2	0	•	1	2	1	12
3	0	0	0	0	0	0	3	1	7	7	5	1	21
4	0	0	0	0	0	0	4	ì	5	2	4	1	12
5	2	0	2	19	455	478	5	3	2	12	ÿ8	530	513
TOTAL	5	20	24	53	549	451	TOTAL	5	20	24	53	549	451
HUPBER (	OF HI	TS 4	63	PER	CENTAG	E 0.7112	NUMBER OF	HI	rs 5	59	ÞER	CFNTAG	E 0.8387

### VERIFICATION OF 7 HOUR CEILING FORECASTS ATLANTIC CITY, N.J. AIRPORT THE VERIFICATION CPITERION IS "HE PERCENTAGE OF HITS

SUBJECTIVE

40 558

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NUMBER OF HITC STO

441

076

PERCENTAGE 0.4432

PERSISTENCE

AUPPER OF HITS 478

1.7

OBSERVED								OBSERVED								
FORE- CAST	t	2	3	4	5	TOTAL		FORE- CAST	1	2	3	4	5	TOTAL		
ı	0	1	2	2	10	15		1	0	1	0	ı	1	3		
2	ı	11	7	3	11	33		2	3	10	12	2	6	33		
3	o	4	5	8	8	25		3	0	6	9	10	10	37		
4	2	2	9	10	11	34		4	C	0	11	17	22	50		
5	5	3	15	28	518	569		5	5	2	6	21	519	553		
TOTAL	8	21	38	51	558	676		TOTAL	8	21	38	51	556	676		
NUPRER OF HITS 544 PERCENTAGE 0.8047								NUMBER OF HITS 595 PERCENTAGE 0-8219								
CLIMATULOGICAL EXPECTENCY OF PERSISTENCE								GROUPING								
		•	OMSEK	7 ¥ V				OBSERVED								
FORE- CAST	ı	7	3	•	5	TOTAL		FORE- CAST	ì	2	3	4	5	TOTAL		
1	o	i	,	0	•	7		1	0	1	٥	1	1	3		
2	1	•	?	0	3	10		2	t	7	5	5	6	24		
)	c	v	v	ι	ć	Ó		3	G	6	8	4	2	20		
4	Ç	e	0	ι	e	¢		4	õ	2	2	4	4	12		
•	,	18	34	51	551	657		5	7	5	23	37	545	617		
FOFAL	Ð	71	18	54	158	674		FGTAL	8	21	36	51	558	676		
NUPBER IF WITS 559 PERCENTAGE 1.4210								NUNDER OF HITS 564 PERCENTAGE 0.834								
EUNO CONTINGENTY PROJEKTS								MULTIPLE DISCRIMINANT AMALYSIS								
Obeć natu.								OBSERVED								
FERF- CAST	ı	2	3	•	•	TOTAL		FNRE- CAST	ì	2	3	4	5	TOTAL		
i	•	1	>	2	1:	15		i	0	0	0	0	o	0		
2	1	14	11	10	12	108		2	o	5	3	2	i	11		
3	r	1	3	,	1	1		3	O	6	5	5	٥	16		
•	1	4	13	15	29	67		•	e	`	3	4	1	8		

PERCENTAGE 0.7071

#### VERIFICATION OF 3 MOUN VISIBILITY FORECASTS ATLANTIC CITY, N.J. AIRPORT THE VERIFICATION CRITERION IS THE PERCENTAGE OF HITS

PERSISTENCE Deserved								SUBJECTIV/ Observed								
FORE-								FGRE-								
CAST	1	3	1	4	•	TOTAL		CAST	1	,	3	4	•	TOTAL		
ı	7	2	ž	3	10	24		i	1	3	1	4	٥	6		
2	c		•	3	g	24		?	5	6	4	0	7	22		
3	1	3	4	3	•	17		3	4	3	•	7	19	41		
•	2	i	0	2	•	13		4	2	4	3	7	18	34		
•	3	3	10	24	579	619		5	1	4	•	17	568	596		
TOTAL	13	17	22	33	412	699		TOTAL	13	17	22	35	412	699		
NUPBER	E 0.8984		NUMBER OF HITS 590 PERCENTAGE 0.8441													
CLIMATULOGICAL EXPECTENCY UP PERSISTENCE									GROUP ING							
OBSERVEO								OBSERVED								
FURE- CAST	i	2	3	4	*	TOTAL		FORE- CAST	i	ż	3	•	5	TOTAL		
1	,	į	ر ہے	,د	بهور المرمانة <u>ا</u>	per Hope n	age years are			Ł	3	3	11	26		
2	٥	4	2	ı	9	7		\$	ð	0	ð	1	1	2		
3	C	ð	0	0	6	9		3	0	٠	3	t	4	:7		
4	o	0	0	0	¢	0		•	Ç	3	0	0	3	3		
5	•	10	20	31	110	480		5	•	•	14	29	593	651		
TOTAL	13	17	22	33	412	499		TOTAL	13	17	22	35	412	499		
NUMBER OF HITS 620 PERCENTAGE Q. 8870								NUMBER OF HITS BOS PERCENTAGE 0.8695								
	LUND	CONT	ingen	0040\$1	\$		MULTIPLE DISCRIMINANT ANALYSIS									
		(	Desea	AFÜ						(	BSER	VED				
FORE- CAST	ŧ	ł	1	•	•	TOTAL		FCRE- CAST	i	Ł	3	4	3	TOTAL		
ı	1	4	•		1.	48		ı	?	•	3	3	11	26		
ż	C	0	0	٥	4	4		ě	0	٥	0	0	Q	0		
j	?	4	4	3	•	23		3	0	•	3	2	o	11		
4	1	0	Ò	•	•	13		•	ð	0	٥	0	e	0		
9	3	4	10	20	574	411		•	6	1	15	30	401	440		
TOTAL	13	17	22	13	612	699		TOTAL	13	17	22	35	412	699		
NUPBER OF HETS 984 SERCENTAGE 0.9426								NUMBER OF HITS ALL FERCENTAGE 0.8741						t 0.8741		

### VERTETCATION OF SHIRE VISINGEREY FORECASES ATEMPTED CITY, N. J. AIRPORT THE VEHICLATION CRETERION IS THE PERCENTAGE OF HITS

Semis 11.5

PERSISTENCE

e -

DeSFR /f *							ONSER, EC						
FUPE- CAST	•	7	1	4	5	T/)TAL	FFIRE- CAST	ı	,	,	4	5	TOTAL
t	С	n	ı	2	19	77	1	c	ว	9		ı	1
7	1	3	,	2	13	26	2	•	5	,	5	2	1.5
,	1	0	3	2	10	16	3	1	2	ų	ז	13	30
4	Ċ	ō	1	;	10	13	4	1	9	•	5	12	22
5	4	4	7	14	557	584	5	ı	>		9	581	597
771AL	5	7	ļo	"?	609	643	TOTAL	υ	7	19	22	609	663
hupper (	of ⊬II	\$ 50	65	P { B	LENTAG	E 0.8522	YHMPER ()	F ∺[T	<b>5</b>	98	P[6	CENTAG	F 3.9020
CLIMATO	OL DG EC	AL E	y P E C T	ENCY	OF PER	SISTENCF			,	GR(+)+	140		
		0	DRZEN	4ED					•	UASER	v£0		
FORE- CAST	ì	2	3	4	5	17745	FRE- CAST	1	2	3	•	5	TOTAL
ı	c	0	ì	2	7	10	1	0	0	,	2	4	8
ž	c	Q	9	0	c	n	2	c	٥	c	٤	0	G
3	c	0	G	0	G	0	3	¢	٥	o	C	3	3
4	c	0	0	٥	0	^	4	1	3	1	c	7	12
5	6	7	18	20	502	653	5	5	4	16	20	595	540
TOTAL	5	7	19	72	609	663	TOTAL	6	7	19	22	609	683
Nupefr (	DE HIT	\$ 6	02	P±1	CENTAG	E 0.9080	NUMBER ()	FHIT	s 5	95	PFE	CENTAG	E 0.8974
	LUND	CONT	INGEN	CY PR	LC +051	5	~0	LTIPL:	C 011	SCR I P	IVAVI	ANĀĻY	\$15
		(	ORSER	A&C					(	18564	VEC		
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	ı	2	3	4	5	TOTAL
i		1	5	•	30	41	1	c	9	ı	o	11	12
<b>?</b>	c	0	9	o	c	r	2	c	0	2	o	0	0
3	¢	၁	0	G	0	o	3	ι	1	0	n	Q	1
•	¢	o	၁	ć	õ	•	4	c	3	c	0	c	o
5	5	6	14	18	579	672	\$	4	5	16	27	398	650
JA 1C I	٨	7	Ð	٠.	609	643	TOTAL	•	7	14	22	509	663
MIJWHED	)f ⊢]ſ	\$ 41	60	yfa	CESTAL	F 6.874#	1 3 MRE 11	11.1	5 5.	<b>)</b> 4	P1 w	~ENTAG	F 0.1925

### SERVER ATTOM OF THROW TEARLETTY CONTRACTS, ATTAMIC CITY, 20.1. ATRIBUTE THE VERTILATION CRITERION IS INC. PERCENTAGE OF HITS

		PFK	SISH	<b>SCI</b>			SORIFCTIVE						
		t!	HY STRY	n n					1	HSFFY	fo		•
FORL- CAST	1	>	•	÷	•	TEFAL.	FCIRE - CAST	ı	,	3	4	5	TOTAL
ı	э	o	ì	v	20	21	1	n	9	J	6	1	Ł
	1	3	4	ì	15	75	,	7	2	1	4	7	12
3	2	1	ı	o	12	. 6	3	1	,	4	7	13	27
4	٥	0	0	e	14	14	4	t	3	ı	7	15	21
5	7	3	12	13	546	5# <b>1</b>	5	4	o	4	10	571	595
TOTAL	'n	7	19	14	607	651	TOTAL	19	1	19	14	607	657
NUMBER	OF HIT	S 5!	50	PER	CENTAG	E C.9371	4WHHER	OF HIT	S 50	34	PFR	CFNTAG	E C.#889
CLIMAT	orue (	AL E	xPEC1	EHCY	OF PFK	: ISTENCE			:	GROUP	ING		
		1	OBSER	YED					!	OBSER	VED		
FORE- CAST	ı	2	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	IOTA
i	0	0	ı	c	ð	9	ì	٥	0	1	0	٥	ì
2	0	0	٥	0	0	G	2	q	9	ប	ŕ	0	0
3	0	Q	0	0	0	C	3	O	3	O	0	1	1
3	٥	Ç	0	0	c	0	4	c	ប	٥	0	0	0
5	10	7	18	14	599	646	5	10	7	18	14	606	655
TOTAL	10	7	19	14	607	657	TOTAL	10	7	19	14	607	657
NUMBER	0F H11	15 5	99	PFF	CENTAG	E 0.7117	n kaer	OF HI	rs 6	06	PEI	RCENTAG	E 0.922
	LUND	CONTI	NGENC	Y P#	PANUSE:	3	٠	NJL T [PL	E 0*5	CA1M'	<b>T</b> PAY'	ANALY:	315
		C	IKSFRV	16"1					(	145541	/FO		
FORE- CAST	ì	2	\$	4	5	fOFAL	FORE- CAST	1	2	3	•	5	1014
t	1	3	6	ì	35	46	1	o	٥	0	υ	0	٥
2	1	0	l	1	21	<b>3</b> 0	,	0	0	0	٥	o	Q
3	7	1	ı	ij	12	16	3	0	0	٥	¢	O	0
4	4)	0	0	U	n	U	•	0	U	0	0	o	0
5	4	\$	11	32	533	565	5	10	,	19	14	106	657
151AL	i.	7	17	14	507	651	TOTAL	10	ţ	14	14	601	651
theres h	0F 941	5 5	<b>;</b> %	pr R	(,FN1AG	F 0.81+1	NUMBER	OF 112.1	\ n	0.1	P1 #	CENTAG	1 0.12%

### VERTICATION OF 2 HOUR CEILING FORECASTS WESTOVER AFR. CHICHPER. MASS. THE VERTICATION CRITERION IS THE PERCENTAGE OF HITS

PERSINTE WEE OBSERVED										IBJFC1 IHSER1			
FORE- CAST	ı	2	3	4	5	TOTAL	FORE- CAST	ı	z	j j	4	5	TOTAL
i	a	3	2	2	2	15	ŧ	3	2	٥	1	1	7
2	5	8	5	0	0	19	2	11	10	8	0	1	30
3	0	7	27	7	3	44	3	0	8	24	9	3	44
4	0	3	6	44	35	88	4	0	3	7	44	52	76
5	4	3	5	lo	455	485	5	٠,	l	4	17	468	493
TOTAL	11	24	4.5	71	495	650	TOTAL	1/	24	43	71	495	650
NUMBER	0F H[]	r4 54	• 2	PER	CENTAGI	E 0.8338	NUMBER	<u>ፀ</u> ደ ዛ፤፤	'S 54	.9	PER	CENTAGE	0.8446
CL IMA	roLoss	CAL E	X P E C T	E-YC.Y	UF PER	SISTENCE			i	GROUP	ING		
		i	UdSF.	AED					1	OBSER	VED		
FORE- CAST	ì	2	3	4	5	1014L	FORE- CAST	1	2	3	4	5	TOTAL
ì	<b>‡</b>	3	G	5	2	16	1	9	3.	Û	2	2	16
2	•	il	7	0	o	23	2	4	10	6	0	0	20
3	C	5	26	4	3	38	3	1	to	85	B	3	50
4	6	5	6	50	25	86	4	٥	1	6	40	24	71
5	.3	Õ	4	15	465	487	5	3	ij.	3	21	÷66	493
10175	17	24	41	71	495	650	TOTAL	17	24	43	71	495	650
ruybfq	16 ml	15 5	61	PES	ICENTAG	E 0.8631	NUMBER.	OF HI	TS S	53	PEF	CENTAG	C 0.850
	FAAQ	CONF	Ingfn	CY PS	:DGNO\$1	s	,		Le ot:	SCRIN	[YAN]	ANALY	sis
			GHSER	4FD					1	DBSER	VED		
FÖRE- Cast	ı	,	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
1	9	1	•	:	2	15	ı	10	3	ō	2	2	17
	5	3	,	c	0	l =	z	4	13	8	Q	6	24
*	o	7	27		3	44	3		**	24	6	1	35
	3	1	5	44	35	5 •	4	0	2	4	42	10	58
3	4	ì	5	34	4"5	444	5	4	7	7	21	482	516
1.14	17	>-	41	71	495	65)	tertal	17	2.9	4 5	74	495	650
ZUSTEZ	114 16	[5 o	47	<b>11</b>   4	IL' VIAG	£ 6.8338	મૃતાયન્દ્ર	' f - 111	15 3	71.	٥. ١	CeNT46	* 6.3751

### VERIFICATION OF 3 HOUR CEILING FURECASTS RESTOVER AFR, CHICUPEE, MASS. THE VERIFICATION CRITERION IS THE PERCENTAGE OF HITS

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The same and the state of the state of the same of the

#### PERSISTENCE

082	ERVED
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FORE- CAST	1	2	3	4	5	TGTAL
ı	q	3	0	2	2	16
2	4	11	8	1	0	24
3	e	8	27	5	4	44
4	0	4	6	49	24	8 3
5	3	0	5	16	470	494
TOTAL	16	26	46	73	500	661

NUMBER OF HITS 566 PERCENTAGE 0.8563

		C	BSERV	/60						C	BSERV	ED		
FURE- CASI	ı	2	3	4	:	10146		FORE- CAST	ι	2	3	4	5	TOTAL
ı	3	0	1	2	c	Ŀ	*	1	3	5.	3	2	2	21
5	1	8	2	Q	C	11		Z	3	7	2	٥	1	13
3	o	6	24	9	4	43		3	0	4	17	7	3	31
4	0	4	9	42	35	90		4	0	8	19	40	26	93
5	12	8	10	20	461	511		5	4	2	5	24	468	503
ŤOTAL	16	26	46	73	500	661		TOTAL	16	26	46	73	500	661

	LUND	CONT	INGEN	Y PR	ngNOS1:	5	PI	JLTIPL	E DIS	CKINI	NANT	ANALYS	15	
		ŧ	JBSER1	/ED					C	BSERY	יכס			
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	ı	2	3	4	5	TOTAL	
1	9	3	C	2	2	16	1	4	4	0	2	o	10	
2	4,	11	H	ı	0	74	?	2	7	4	0	0	13	
3	o	8	27	5	4	44	3	i	ts	23	16	2	42	
4	ί	4	6	49	24	81	4	o	5	8	32	11	57	
5	3	ก	5	16	474	494	5	y	3	11	29	487	5 3 9	
TOTAL	İß	26	46	7 3	500	661	TOTAL	16	26	46	73	500	661	
NUMBER OF MITS 546 PERCENTAGE 0.8565						E 0.8563	<b>બા</b> ગ્યક્સ	्र स्वा	5 5	5 1	bł o	CENTAGE	J.#366	

## VFRIFICATION OF 4 MOUN CEILING FORECASTS WESTOVER AFR. CHICOPEF, MASS. THE VCRIFICATION CRITERION IS THE PERCENTAGE OF HITS

		PE	RSIS	ENCE					s	UBJEC	TIVE		
			OBSE	VED						JBSER	VED		
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
1	3	2	2	2	7	15	1	ì	1	0	9	2	4
2	1	9	7	6	2	25	2	3	6	4	4	3	20
3	1	5	24	8	10	4.8	3	2	10	21	12	3	48
4	1	4	9	36	29	79	4	0	3	15	39	36	93
5	1	1	9	27	449	487	5	ı	i	11	24	453	490
TOTAL	7	21	51	79	497	655	TOTAL	7	21	51	79	497	655
NUPBER	OF HI	TS 5	21	PEI	CENTAG	E 0.7954	NUMBER (	)F HI	TS 5	20	PEI	RCENTAGE	E 0.7939
CLIMAT	0L061	CAL E	XPECT	ENCY	OF PER	SISTENCE				GROUP	ING		
			OBSER	VED						085ER	VED		
FORE- CAST	1	2	3	4	5	TOTAL	FORE- Cast	1	2	3	4	5	TOTAL
1	0	0	0	1	0	1	1	3	3	3	3		20
2	1	2	0	2	0	5	2	1	7	6	2	0	16
3	1	10	25	y	10	55	3	1	5	19	6	1	38
4	1	3	6	24	50	54	4	1	5	14	31	20	71
5	4	6	20	43	467	540	5	1	1	•	37	462	513
TOTAL	7	21	51	79	497	655	TOTAL	7	21	51	79	497	455
NUFBER (	OF H1:	rs 5	18	PER	CENTAG	E 0.790a	NUMBER O	F HI	rs s	22	PER	CENTAGE	Q.7969
	LUND		INGEN: D85ER:		OGNOSI	s	MU	LTIPI				AMALYS	15
FORE-							FORE-		· ·	BSER!	/ED		
CAST	1	2	3	4	5	TOTAL	CAST	ı	2	3	4	5	TOTAL
1	3	2	2	2	7	16	1	3	ı	2	1	2	y
2	ì	9	7	6	2	25	2	ì	2	2	1	1	1
3	1	5	24	8	10	48	3	ı	11	29	11	2	54
4	1	4	9	36	29	79	4,	ป	3	5	26	7	41
5	1	1	9	21	449	48;	5	2	4	13	40	485	544
TOTAL	7	21	51	79	497	653	FOTAL	7	21	51	79	497	455
NUMBER C	)F HIT	S 52	? <b>1</b>	o E R	CENTAGI	E 0.795%	NUMBER DI	FHI	rs 34	5	PFB	CENTAGE	0.8321

### VERTFICATION OF A HEUR CELLING FORECASTS WESTOVER AFB. CHICOPEF. MASS. THE VERTFICATION CRITERION IS THE PERCENTAGE OF HITS

SUBJECTIVE

PERSISTE ICE

		,	เหระ	(VED						945EF	A to		
FORF- CAST	1	2	3	4	5	TOTAL	FORE- CASI	1	,	3	4	5	THEA
1	0	1	2	4	y	6	1	1	J	1	J		3
2	?	7	7	8	6	25	2	2	6	10	1	1	20
3	2	5	14	15	6	47	5	)	5	20	11	3	37
4	ı	7	16	31	32	47	4	1	3	13	51	39	101
<b>&gt;</b>	Ç	3	5	45	440	4)4	5	1	4	5	41	449	5 10
TOTAL	5	18	49	104	493	65 #	JATOT	5	19	4 }	1.74	493	669
ካህሦዘርጸ	JE HI	TS 4	92	46.	CFYTAG	E 3.7354	dimités i	if HI	f\$ 5.	71	րքն	CENTAG	E 0.187
CL IMA7	3LO -10	CAL E	XPEC 1	ENCY	OF OFA	SISTENCE			•	GROUP	1 46		
		(	065E6	ver.					i	OMSEH	AF D		
FORE- CAST	1	2	3	4	5	FOTAL	£U8£-	ì	Z	3	4	5	TOTA
1	c	0	c	ú	С	e	ì	ŗ	,	ı	U	2	3
2	ô	0	0	Ü	۲	•	,		ı	4	3	1	17
j	2	3	17	7	4	26	•	¢	3	12	Ħ	3	26
4	3	3	19	2 1	14	42	4	2	5	18	32	18	75
5	3	12	19	74	475	579	4	ł	,	14	61	463	548
TOTAL	5	18	49	104	493	669	FOTAL	5	18	49	104	493	669
NUPBER (	)F H]1	rs 5:	10	PŁS	CENTAG	E 0.7623	MIJMRER (	SF HI	15 S	30	oğ.	CENTAG	E 0.759
	LUND	C041 1	NGEN	C4 bk	ognost:	s	MÇJ	L T 1 P L	.E 019	CRIM	TVAVI	ANALY	515
		O	HSFR	VFD					C	iesek	<b>VED</b>		
FORE- CAST	1	2	3	4	5	TOTAL	FCRE- Cast	ı	2	3	4	5	TOTA
î	7	ı	,	3	4	14	1	c	1	2	1	С	4
2	c	0	G	c	0	ę	,	7	1	2	3	1	9
3	J	y	33	31	16	92	3	7	3	20	8	2	35
4	c	4	8	15	12	119	٠	0	7	14	33	8	62
•	·	4	4	15	401	4 4	5	ì	6	11	59	482	559
TOTAL	5	18	49	104	443	669	TOTAL	5	18	44	104	493	669
vu⊁BEN )	F H[[	< 4 <i>1</i>	ı	P{ P	CENTAGE	0.1040	NUMBER 11	F 14] [	'S 51	14	1 t K	CFWTAG	F C.401

### VERIFICATION OF 2 HOUR VISIBILITY FORECASTS WESTOVER AFB. CHICOPEE, MASS. THE VERIFICATION CRITERION IS THE PERCENTAGE OF HITS

SUBJECTIVE

CHSERVED

PERSISTENCE

OBSERVED

			.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	• • • •									
FORE- CAST	ì	2	3	4	5	TOTAL	FORE~ CAST	ì	2	3	4	5	TOTAL
1	12	2	2	2	c	19	1	4	2	ŧ	c	o	7
2	2	5	7	1	o	15	2	10	3	9	0	0	22
و	×	4	20	5	4	41	3	12	9	32	12	8	71
4	1	1	14	15	14	45	4	0	0	7	24	26	57
5	ı	2	11	27	527	563	5	o	0	5	14	506	525
101 AL	24	14	54	50	540	682	TCTAL	24	14	54	50	540	642
NUMBER	0F <b>⊬</b> 1	TS 5	74	ÞEF	CFNTAC	SE 0.841n	NUMBER	R OF HI	ts 5	69	PEI	RCENTAC	GE 0.8343
CLINAT	3L0C10	(AL E)	PECT	ENCY	OF PFR	SISTENCF			ć	GROUP	146		
		C	IASERY	トゥ					(	)BSFR	VED		
FURE- CAST	1	2	3	4	5	TOTAL	FORE- Cast	ı	2	3	4	5	TOTAL
1	15	4	3	2	0	24	1	16	4	4	2	0	26
2	2	1	0	0	0	3	2	1	2	2	0	0	5
3	4	8	?1	ŋ	ı	34	3	5	6	27	13	4	55
4	С	0	2	1	2	11	4	1	0	11	2	4	18
5	3	1	28	41	537	610	5	ı	2	10	33	532	578
TOTAL	24	14	54	50	540	642	TOTAL	24	14	54	50	540	682
NUFBER	0F P11	r <b>s</b> 5/	31	PFR	CENTAG	E C.8519	NUMBER	OF HIT	rs 51	79	PER	CFHTAGI	E 0.8490
	LUNU	TACO	INGFN	CY PR	OGNOSI	s		MILT I PI	LC 91	SCRIM	I YART	ANGLY	515
		(	DASER	VED					(	Deser:	VED		
FORE- CAST	1	?	3	4	5	TOTAL	FORE- CAST	i	2	3	4	5	TOTAL
i	15	4	3	2	0	24	ı	in	4	7	3	0	32
ż	۲,	10	50	46	141	256	,	,	4	3	n	c	9
3	*	0	•	,	c	•	3	4	4	10	4	2	44
4	Ĉ	•	c	•	ſ	c	4	0	0	7	20	6	33
5	¢		1	2	399	407	5	*		7	23	532	564
TETAL	24	14	,4	, 1	540	682	t est V f	24	14	54	50	540	642
NUMMER	ભ ►!!	15 4,	?4	nt 3	CENTAG	E 0.6211	. N. Auf R	1 11	ı <i>•</i>	4	114	C + + † AG	

### VERTICATION OF 3 HOUR VISIBLETY FURICASTS WESTIVER AFB, CHICAPEL, MASS. THE VERTI-CATTY CRITERION IS THE PERCENTAGE OF HITS

PERSISTENCE

OBSERVED

FORE- CAST	1	2	•	4	5	1014
ı	14	4	2	2	,	24
2	5	4	3	;	e	12
<b>š</b>	4	5	30	3	3	45
4	r	1	12	24	13	41
5	43	ı	6	19	525	551
IGTAL	25	14	51	44	541	673

NUMBER OF HITS 599 PERCENTAGE 0.8422

CL 1#A1	aldal	CAL E	XPFC1	FACA	UF PER	SISTEMOL			(	CROUP	ING		
		1	OKSER	٧٤٠						BRSER	VED		
FCHE- CAST	1	2	3	4	,	TOTAL	FURE~ Cast	1	2	3	4	5	TOTAL
ı	5	ı	1	1	o	H	1	13	2	5	2	0	22
2	9	4	5	ı	C	19	7	2	5	4	3	0	14
3	9	6	17	,	3	44	3	5	3	15	11	5	39
4	0	0	>	t	9	21	4	1	v	4	ı	1	7
<b>5</b>	2	3	21	14	527	587	5	4	4	23	31	535	597
TOTAL	25	14	5ì	48	541	619	TOTAL	25	14	51	48	541	679
NUMBER OF HITS 562 PERCENTAGE 0.827"						NUMBER	OF HE	TS 50	69	PEL	TNTAGE	0.6360	

	LIIND CONTINGENCY PROGNOSIS						4	ULTIPL	F DIS	CRIM	TPAP	AHALYS	1S
		C	185641	/En					(	185501	/FO		
FORE- CAST	ι	2	3	4	5	TOTAL	FORE- CAST	ı	>	3	4	5	TOTAL
ı	12	2	1	2	0	17	1	A	3	2	2	0	15
2	3	5	6	1	o	15	,	>	0	2	0	0	•
3	7	2	7	J	2	20	3	10	7	11	2	2	32
4	1	5	23	17	42	84	4	0	0	ь	3	4	15
5	2	0	12	28	497	53+	,	5	4	28	4:	535	613
TUTAL	25	14	51	% pt	541	417	fiifal	25	14	51	4 H	541	679
NUPBER	)f +t	15 5	40	n t u	CENTAG	E 0.7153	NUMBER	OF +11	15 5	57	P1 R	CENTA"	r.#203

#### VERIFICATION OF 4 HOUR VISIALLITY FORECASIS WESTOVER AFB, CHICOPEE, MASS. THE VERIFICATION CRITERION IS THE PERCENTAGE OF HITS

TOTAL

FORE-CAST SUBJECTIVE

CHSERVED

TOTAL

PERSISTENCE

OHSERVED

2 3 4 5

FORE~

l	•	2	10	)	2 4	23		ı	3	1		l	6 o	5
2	ι	2	5		G 4	12		,	ı	1	i		1 4	4
3	2	6	27		7 9	46		3	4	7			7 11	52
4	5	2	13	1.	2 18	46		4	3	3	23			70
5	2	1	12	2.	2 508	545		5	1	i	12			536
TOTAL	12	13	61	4	3 543	672	T (	OTAL .	17	13	61	4		672
NUPHER	' 1F H	17S (	549	P	RCEN F	AGE 0.6170	'VI	JMHER OI	F HJ	ts s	544	PI	ERCENTAG	F 0.8095
CLIMA	tatas)	ICAL E	xPF(,	TEHEN	OF P6	FRS1S1FHCE					GRQU	PING		
			OBSE	KAEU							ORSE			
FORE- CAST	ı	2	3	4	5	TOTAL		RE- IST	1	2	3	4	5	TOTAL
1	0	0	0	Ĺ	. 0	n		1	5	4	12	1	. 6	28
2	c	o	)	o	0	c		>	1	0	8			11
3	၁	າ	0	O	c	c		3	2	2	12	4	•	75
4	c	ð	0	U	c	0		4	0	3	9	ė		22
5	12	13	61	43	543	672		5	4	4	20	31		586
TOTAL	12	13	61	43	543	672	ŧo	TAL	12	13	ė i	43		672
NUPHER	⊎F HI	15 5	43	ΡF	RCENTA	GE 0.80%0	NO	MRER OF	#11	15 5	50	PE	RCENTAGI	0.8185
	LUSD	C0:41 1	MoENI	CY PR	OGNOSI	15		MULT	IPLI	E 015	CRIM	I NANT	ANAI, YS	10
		(	HSFR	1FD							MSEP			, ,
FUPE- CASI	1	7	3	4	5	"TAL	ng CS		ı	2	3	4	5	TOTAL
1	5	7	10	2	4	2 3	1		4	2	6	2	2	16
2	1	2	5	¢	4	12	,		С	1	0	0	6	i
3	,	6	"	1	y	46	,		,	4	16	,	9	15
4	•	3	21	12	135	194	4		r		Ç	o		v
',	1	0	3	2	191	397	,		5	8	19		532	670
FISTAL	12	13	61	41	543	617	tar			1 1	61		543	677
hores (	1F 1+1 T	S 45.	,	1°6 H4	`∧¥T#√	F 0.67,6	امائل	ofw rat a	q i s	*4*	1	, • st,	FATAGO	,

## VERIFICATION OF 6 HOUR VISIBILITY FORECASTS WESTOVER AFB, CHICOPEE, MASS. THE VERIFICATION CRITERION IS THE PERCENTAGE OF HITS

PERSISTENCE

OBSERVED

SUBJECTIVE

QBSERVED

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FORE- CAST	1	2	3	4	5	TOTAL	FORE" Cast	1	2	3	4	5	TOTAL
				,	14	23	ı	ı	ı	ı	0	0	3
1	2	2	2	3	14	12	2	0	1	7	2	4	14
5	ι	ð	3	2	6	42	3	3	3	11	10	4	31
3	3	3	14	9	13	42	4	4	5	7	13	23	52
4	2	4	7	12	17		5	ı	ι	14	32	491	539
5 TOTAL	1 9	11	14 40	31 57	472 522	~20 639	TOTAL	9	11	40	57	522	639
NUMBER C	)F H[1	'S 50	c	PER(	ENTAGE	0.7825	NUMBER C	F HI	rs 5	17	PER	CEMTAGE	0.8091
CLIMAT	QF OC 1	CAL F	(PECT	ENCY	OF PER	SISTENCE				GROU	PING		
			DESER	VED						OBSE	RVED		
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
1	2	2	2	2	2	10	, 1	1	1	5	1	2	10
2	0	0	0	c	0	0	?	1	0	0	G	3	4
3	2	ı	6	4	6	19	3	1	3	7	7	13	31
4	0	0	0	0	0	Q	4	2	2	3	. 4	6	17
5	5	а	32	51	514	610	5	4	5	25	45	498	577
TOTAL	9	11	40	57	522	639	TOTAL	4	11	40	57	522	639
NUMBER	UF H	ITS S	522	PE	RCENTA	GE 0.8169	NUMBER	OF H	11.15	510	PE	RCENTAG	E 0.7981
	. 1181	n (081	1 MILE	NCY P	ROGNOS	15		MILT I	PLF D	ISCRI	MINAN	T ANALY	\$15
	Com	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	OBSE							0858	RVED		
FORE- CASI	1	2	3		5	TOTAL	FORE- CAST	1	. 2	· :	3 4	5	TOTAL
	2	0	2	3	. 8	15	ı	a	2 2	?		0	5
1	í					1.4	2	c	. (	)	0 (	0	o
2	,					74	\$	ā	2 (	ž ·	2	3 2	11
3	,				158	202	4	(	g (	0	0 (	o o	0
4	1				) 116	334	5	•	5	7 3	7 5	• 0	623
****	9				, ,,,	63%	TOTAL		<b>?</b> 1	1 4	ი 5	1 522	639
40×HE1						4GE 0.5565	HIMRE	₹ 1F	ы rs	524	ų	A18 () #1	GF .#200

### VERIFICATION OF 2 HOUR CEILING FURECASTS WASHINGTON NATIONAL AIRPORT THE VERIFICATION CRITERION IS THE PERCENTAGE OF HITS

大田のはいてよるなないといると、大田のいの名の出土の一般の対象

#### PÉRSISTENCE

_	2	e	£	v	£	n

2 0 2 2 1 0 5 3 1 0 22 11 3 37 4 0 0 6 17 13 36 5 1 0 1 14 560 576	FORE- CAST	1	2	3	4	5	TOTAL
3 1 0 22 11 3 37 4 0 0 6 17 13 36 5 1 0 1 14 560 576	ı	1	2	0	0	0	3
4 0 0 6 17 13 36 5 1 0 1 14 560 576	2	e	2	2	1	e	ż
5 1 0 1 14 560 576	3	t	0	22	11	3	37
	4	0	0	6	17	13	36
TOTAL 3 4 31 43 576 657	5	ı	0	1	14	560	576
	TOTAL	3	4	31	43	576	657

NUMBER OF HITS 602 PET

PERCENTAGE 0.9163

CLIMAT	oraetc	AL E	KPECT	ENCY	OF PER	SISTENCE				(	GROUP	ING		
		(	DBSER	VED						. (	DBSER	VED		
FORE- CAST	ı	2	3	4	5	TOTAL		FORE- CAST	1	2.	3	4	5	TOTÁL
ļ	0	0	0	0	0	c		1	1	2.	0,	1	•	4
2	1	3	ı	1	c	6	•	?	1	* <b>1</b> .	7	1	1	11
3	• 1	1	23	11	3	39		3	0	1	15	7	2	25
4	0	0	6	17	13	36		4	0	٥	8.	19	12	39
5	1	0	1.	14	560	576		5	1	0	1	15	561	578
TOTAL	3	4.	31	43	76ر	657		TOTAL	3	*	31	43	576	-657
MINGES	n <b>r</b> utt	C 4	n 2	050	CENTAG	E 0. 917#		MIMAFE (	ne wil	'C &	<b>.</b> ,	958	CENTAG	F 0.9087

	LUND CONTINGENCY PROSHCSIS						M	ILTIPL	E- D1:	CRIM	LHANT	ANALY	515
		1	DBSER	VED					(	asra:	/E0		
FORE- CAST	ı	2	3	4	5	TOTAL	FCRE- CAST	ı	2	3	4,	5	TOTAL
ì	ı	2	0	0	o	3	t	ı	2	o	0	0	3
2	0	2	2	ı	0	5	2	0	1	3	2	0	6
3	ı	9	22	11	3	31	3	ŋ	1	17	7	0	25
4	٥	0	7	28	84	119	4	9	0	7	16	10	33
5	i	0	ŭ	3	489	493	5	2	0	4	18	566	590
FOTAL	3	4	31	43	576	657	TOTAL	1	•	;1	43	576	657
NUPBER	ባይ ዘመ	5 5	42	nen	CFNTAG	E 0.8250	HUMHER I	15 451	15 61	31	PE H	CENTAG	6.9144

#### VERIFICATION OF 3 HOUR CEILING FURECASTS WASHINGTON NATIONAL AIRPORT THE VERIFICATION CRITERION IS THE PERCENTAGE OF HITS

SUBJECTIVE

PERSISTENCE

		, ,	~3131	Lite					•	,00321			
OMSERVED										OBSE	A V F D		
FORE- CAST	1	?	3	4	5	TOTAL	CAST	1	2	3	4	5	TOTAL
1	1	0	. 0	ò	1	2	1	e	0	0	0	0	0
2	0	ı	3	ı	2	7	?	0	0	3	0	2	5
3	O	o	10	2	0	12	3	¢	1	12	9	3	25
4	¢	0	5	13	9	28	4	0	0	4	13	16	33
>	1	1	3	16	471	492	5	2	1	3	10	462	478
TOTAL	5	2	22	32	483	541	TOTAL	3	2	27	32	483	541
NU#8ER	OF HI	TS 4	96	PE	CENTAG	E 0.9168	Numbér (	F HII	rs 4	87	PE	RGENTAGI	0.9002
CL I*AT	0L0G10	CAL E	XPFCT	FNCY	QF PER	SISTENCE				GNOSS	'ING		
		•	OBSER	450						OHSES	RVED		
FORE-CAST	1	2	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
1	o	o	c	e	0	э	ı	1	٥	0	0	1	2
2	c	Ų	3	e	1	4	2	•	1	3	1	0	5
3	۵	ı	4	1	2	8	3	0	o	9	2	3	14
4	e	9	12	15	9	36	4	٥	0	6	10	6	22
5	2	ı	3	16	471	493	5	Ĺ	1	4	19	473	498
TOTAL	2	2	22	32	453	541	TOTAL	5	2	22	32	483	541
RUPBER &	0F-H11	S 49	0	FER	CENTAG	E 0.9057	NUMBER O	F HIT	'S 4	94	PE	CENTAGE	0.9131
	tusb i	raire	ere en e		OGNOS ES			,					
	EUND .		BSERV		<i>j</i> orus (;	•	PIJI	, I I PL		SCR IM Ursek		ANALYS	15
FORE- CAST	1	2	3	4	ý	FO:AL	FORE- CAST	t	2	3	4	5	TOTAL
ı	ı	0	c	3	1	,		0	0	e	0	o	Ġ
2	ů.	ŧ	•	ı	2	1	,	G	0	1	1	0	2
3	ŗ	?	ı٠	2	0	12	3	0	t	12	3	3	19
4	9	t	4	22	75	196	4	0	0	6	8	4	18
,	1	n	1	1	405	414	5	•	ι	3	20	476	502
TUTAL ,	2	5	2.2	11	483	541	TOTAL	,	2	22	32	483	541
AUFHER 11	F mili	و شد	<b>,</b>	٠٠ <u>۲</u> ২0	. TN 1 4GE	- J+9115	संस्थादः अ	1111	,	) <b>4</b>	PF40	SENTAGE	h শাস্ত্র

## VERIFICATION OF 5 MAN CELLING FORECASTS WASHINGTON NATIONAL AIRPORT THE VERIFICATION CRITERION IS THE PERCENTAGE OF HITS

**3**.7-

		P!	EASIS	TENCE							LAUZ	ECTIV	F.	
			Nuse	RVFD								ERVED		
FORE- CAST	1	2	3	4	5	FOTAL		FORE- CAST	1	i			4 5	TOTAL
:	c	0	О	Ú	. 2	2		1	o	Ę	١,	<b>3</b> ,	o o	
2	c	1	3	2	1	7		2	0	i			0 20	0
3	0	0	5	6	?	13		3	0				7 3	5
4	e	1	6	10	10	27		4	0				-	19
5	ij	3	4	14	474	495		5	0	•		-	_	39
TOTAL	า	5	18	32	489	544		TOTAL	0	5				481 544
NUMBE	R OF HSTS	4	90	PEi	RCENTAI	GE 0.9007		NUMBER	RF HI	75	484	96	ERCENTAI	GE 0.8897
CL 1×	ATDLUGICA	L E	KPECT	EACA	OF PER	ISISTENCE					GROU	P ING		
		(	JUSER	AEC							OBSE	KVED		
FCKE- CAST	1	2	3	4	5	TOTAL		FORE- CAST	1	2	3		5	TOTAL
i	0	0	o	0	0	o	٠,	ŧ	ø	Q.	0	0	o	o
2	0	9	ì	1	Q	2	•	2	U	0	o.	ů	-	0
3	e	o	4	1	i	6		3	0	1	11	10	•	27
4	ŋ	0	5	8	5	18		4	0	0	3	5	3	11
5	0	5	8	22	453	518		5	0	4	4	17	481	506
TOTAL	o	5	18	32	489	544		TOTAL	υ	5	18	32	489	544
Supre.	OF HITS	49	5	¤E (I	CENTAG	E 0.9019		NUMBER O		S 4	97	PER	ICENTAG	E 0.9136
	LUND CO				GNCS18	i		Mitt	.11916	DI:	CHIM	Inant	ANALYS	15
*		OF	SFRV	En						ſ	eser.	VED		
FURE- CAST	1 .	?	3	4	5	TOTAL		FORE- CAST	1	2	3	4	5	TOTAL
1	0 (	9	0	c	2	2		ı	0	0	o	0	- 0	Q
7	<b>\$</b> 1	ì	3	2	i	3	•	,	(ı	0	0	0	Ċ	0
3	о (	)	4	b	2	13	•	3	0	1	Ð	8	3	20
4	r a	2	9	Į a	75	105		4	0	1	4	5	4	16
5	∵ a	<b>!</b>	1	5	409	417		5	¢	3	8		482	510
TETAL	ŕ	į	10	₹ <b>,</b> *	<b>4</b> 89	544		FOTAL	0	5	18		489	544
MOPPER :	क्ष भार	434		११ ५८।	ENTAGE	0.7978		MINIBER III	11115	49	<b>5</b>	PERC	CENTAGE	. 1643

### VERIFICATION OF 7 HOUR CEILING FORECASTS WASHINGTON NATIONAL AIRPORT THE VERIFICATION CRITERION IS THE PERCENTAGE OF HITS

PERSISTENCE

SUBJECTIVE

			BSER							(	RSERV	/ED		
FURE~ CAST	1	2	3	4	5	TOTAL		FORE - CAST	1	2	3	4	5	TGTAL
1	C	0	o	o	3	3		1	0	0	0	o	0	0
2	o	ı	2	1	7	11		2	0	2	3	1	2	8
3	0	3	4	12	6	25		3	0	3	6	10	7	26
4	C	2	6	10	17	35		4	0	2	7	15	19	43
5	1	2	9	22	573	607		5	1	1	5	19	578	604
TOTAL	1	8	21	45	606	681		TOTAL	1	8	21	45	606	681
, KUPBER	OF HIT	'S 5	8 <b>8</b>	PER	CENTAG	E 0.8634		NUMBER (	DF HIT:	\$ 61	01	PER	CENTAG	E 0.8825
CLIMAT	OLOG1C	AL EX	(PECTI	ENCY	OF PER	SISTENCE	-			(	ROUP	ING		
		C	BSER	<b>VED</b>						C	BSERV	/ED		
FORE- CAST	1	2	3	4	5	TOTAL		FORE- CAST	ı	2	3	4	5	TOTAL
.1	0	0	0	0	o	0		1	0	0	c	0	Z	2
2.	C	0	0	ð	C	C	•	2	0	0	0.	0	0	O
3	0	i	0	3	2	.6		3	0	3	7	8	4	22
4	à	0.	0	0	0	0		4	0	ı	4	9	10	24
5	1	7	21	4,2	604	675		5	ı	4	10	28	590	633
TOTAL	1	8	-21	45	606	681		TOTAL	1	8	21	45	606	691
NUMBER	OF H1T	S 69	)4-	PER	CENTAG	E 0.8869		NUMBER (	DF HIT:	5 61	06	PER	CENȚAG	E Q.8899
4.	-													
-	÷ŕňno -	CONT	INGENI	ÇY PR	ngansi:	S		Ř	)LTIPLI	E Ots	CR I H	ENANT	ANALY	<b>S1S</b>
	-	_ (	BSER	VED						•	)ASER!	/ED		
FURE- CAST	1	2	ş	4	ş	TOTAL		FORE- CAST	1	2	3	4	5	TOTAL
1	o	0	0	Ŏ	4	4 .		1	0	0	0	O	0	0
2	9	٥	0	Q	G	0		2	0-	0	0	0	0	0
3	G	4	è	14	. 3	30		3	O	4	4	9	4	21
4	0	?	7	43	60	an		4	0	1	5	13	•	27
5	1	2	5	12	539	559		5	1	3	12	23	594	-633
ŢĊĨĀĻ	1	8	53	45	-6Ô6	641		TOTAL	1	a	21	45	606	681
NUMBER	UF 415	\$ 50	57	PEA	CPNTAG	Ę 0.8326		NUMBER (	DF H18:	5 6	11	PER	CENTAG	E 0.8972

### VERIFICATION OF 2 MOUN VISIBILITY FORECASTS WASHINGTON NATIONAL AIRPORT THE VERIFICATION CRITERION IS THE PERCENTAGE OF HITS

PERSISTENCE	
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OB	s	ε	R	٧	ED
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FURE- CAST	1	2	3	4	•	tota
ı	3	0	0	1	1	4.
2	i	1	1	2	0	5
3	c	1	ッ	c	4	10
4	2	1	4		10	23
5	G	9	7	30	607	644
TOTAL	6	3	17	39	622	687

NUMBER OF HITS 622 PERCENTAGE 0.9054

CLIPAT	<b>บ</b> เอด10	AL E	KPECT	ENCA	OF PER	SISTENCE				(	ROUP:	ING		
		i	185ER	ven						(	DBSER	νĖΰ		
FORE- CAST	1	2	3	4	5	TOTAL		FORE- CAST	1	2	3	4	5	TOTAL
1	2	1	1	0	1	5	•	1	3	ó	0	1	-1	.5
2	0	0	0	0	O	- 0	•	2	0	0	<b>:</b> 0	-0	e	~,o
3	e	0	o	Ð	C	o		3	1	ı	2	0	2	- 6
4	c	0	o	1	5	6		4	0	0	.4	1	3	•
5	4	2	16	3t	616	676		'Š	2	2	11	37	616	648
TOTAL	6	3	17	39	622	687		TÖTÄL	6	3	17	39	622	4,87
NUVSER	OF HI	'S 6	19	PFF	CENTAG	F 0.9010		NUMBER -	OF HIT	'S -6;	22	ĖŁ	CENTAG	E-0.9054

	Finto	CONT	INGEN	CY PR	DGNOS1:	Ş	MU	LTIPL	£ 015	CRIMI	INANT	ANALY	51S
		1	DASER	۸ĒĐ					0	BSERY	/ED		
FURE- CAST	ı	2	3	4	4	TOTAL	FORE- CAST	ı	2	3	4	5	TOTAL
1	3	0	0	C.	1	4	1	2	0	o	0	1	3
2	c	٥	ø	0	0	ø	?	0	0	0	1	0	1
3	1	?	6	2	4	15	3	1	0	1	2	1	5
4	•	0	ē	ú	C	e	4	0	o	2	1	0	3
5	7	1	11	37	617	668	5	3	3	14	35	620	675
FOTAL	Ú	3	17	39	62%	687	TCTAL	6	3	17	39	622	657
TUPPER	0F +11	'S A	>6	e E e	CENTAG	E 0.7112	MUMBER D	f 1+1 T	S 0	74	ņ F t	CENTAG	E 0.º083

# VERIFICATION OF 3 HOUR VISIBILITY FORECASES ASSETTINGTON NATIONAL AIRPORT THE VERIFICATION CRITERION IS THE PERCENTAGE OF HITS

		000		ır e						SUB	JECT	3V		
			SISTEY SSERVE							08	SERV	ED		
FORE- CAST	1	z	3	4	5	TOTAL		FORE- CAST	1	2	3	4	5	TOTAL
				2	1	6		1	0	0	0	0	0	0
1	1	1	1		0	2		2	0	0	2	0	2	4
2	1	0	1	0	3	1		3	2	1	2	4	4	13
3	0	1	1	2	13	21		4	1	1	2	6	10	20
4	C	0	3	5		573		5	0	o	7	17	548	572
5 TOTAL	1	0 2	7 13	18	547 564	609		TOTAL	3	2	13	27	564	609
KUMBER (	)F H11	S 55	54	PER	CENTAGE	0.9097		NUMBER C	IF HIT	S 55	6	PER	CENTAGI	E 0.9130
CLIMATO	)LOGIC	AL EX	(PEC,TE	HCY (	of PERS	ISTENCE					ROUP			
GBSERVED														
FORE- CAST	-1	Z	3	4	5	TOTAL		FORE- CAST	1	2	3	4	5	TOTAL
		:1	1	.0	1	3	*	1	0	0,	1	1	0	2
1.	.0	-0		ó	· ·0	e	•	2	o	0	0	0	0	0
2	^0	0	∵,0	٠,	0	0		3	ı	2	3	2	5	13
3	0		ν,	:0	0	0		4	0	0	1	0	1	2
4	· C	0		27	563	606		5	Z	0		24	558	592
15: TOTAL	3 3-	1 2	1 <u>2</u> 13	27	564	809,		TOTAL	3	2	13	27	564	609
÷muerer-	ÓF HI	TS 5	i63	PE,	RCENTAG	E: 0.9245		HUMBER.	OF HI		61	PE	RCENTA	GE 0.9212
	LÙN	D»¢0¥	•	NCY ·F	RUGNOS	is			MULTI	PLE D		HINA RŸED	NT ANAL	,YS1S
FORE-	1	2	3ZÃD		, 5	ŤOTAL	•	FORE- CAST	1	2	: :	3	4 5	TOTAL
1	ı		, ,	l.	1 1	5		ı	o		•	0	o 0	0
2	1				2 3	3		2	1		)	0	0 2	
3					o C	0		3	t	1	l	0	0 0	
3			_		1 1	3		4	1	. (	)	0	0 0	
5	·1	•	-		3 559	592		5	!	l	1 1	3	27 562	404
2 101AL		-	2 I		7 564	609		TOTAL	:	3	2 1	•	27 564	, 609
AUPBE	R-NF I	H115	562	c	ERCENT	AGE 0.9229		NUMRE	R OF	H\$ T S	562		PFRCFN1	145F G.9224

### VERIFICATION OF 5 HOUR VISIBILITY FORECASTS WASHINGTON RATIONAL AIRPORT THE VEGIFICATION CRITERION IS THE PERCENTAGE OF HITS

		PEF	\$1516	÷4C.€						St	IBJEC 1	IVE		
		C	DASERI	/ED						ŧ	ias er v	/ED		
FORE- CAST	į	s	3	4	5	TO7AL		FORE- CAST	1	2	3	4	5	TOTAL
1	0	1	z	0	4	7		1	G	0	0	0	0	0
2	o	0	0	Ü	3	3		2	i	0	0	0	4	5
3	0	0	ì	ı	7	9		3	0	1	1	3	11	16
4	1	0	2	7	12	22		4	0	၁	2	3	9	14
5	2	2	6	17	628	655		5	Z	2	8	19	630	661
TOTAL	3	3	11	25	654	696		TOTAL	3	3	11	25	654	696
NUPRER (	OF HIT	'S 6	36	<b>PE</b> 8	CENTAG	E 0.7338		NUMBER (	OF HITS	6	34	PEH	CENTAG	E 0.9109
CLIMATI	0L0G10	CAL E	XPECT	ENCY	OF PE	SISTENCE				•	GROUP	1NG		
		1	DBSER	VED							OUSER	VED		
FORE- CAST	1	2	3	4	5	TOTAL		FORE- CAST	1	2	3	4	5	TOTAL
1.	o	0	0	0	0	C C		1	0	٥.	1	0	2	3
2	o	0	0	0	0	0	•	2	0	0	0	0	C	~0
3	0	0	0	0	0	0		3	0	0	0	0	1	1
4	0	0	0	0	e	0		4	0	0	0	0	3	3
5	3	3	11	25	654	696		5	3	3	10	25	648	689
TOTAL	3	3	11	25	654	696		FOTAL	3	3	ìï	25	<b>6</b> 54	<b>6</b> 96
NUMBER (	OF HJ1	rs 6	54	PEI	RCENTAG	€ 0•9397		NUMBER	DF HITS	<b>5</b> 6-	48	PER	CENTAG	E 0.9010
	LUND		INGENI DBSERI		i ZONOS I	2			ILTĮPLE		SCRIMI DBSERI		ANALY	SIS
FURE- CAST	1	2	3	4	5	TOTAL		FORE- CAST	ı	2	. 3	4	5	TG/AL
1	e	1	1	0	1	3		1	0	o	0	a	1	ı
2	1	0	0	1	1	3		2	o	0	0	o	0	)
3	0	υ	3	3	13	19		3	0	0	0	0	1	ì,
4	c	0	0	1	0	i		4	0	0	0	0	0	0
5	· <b>2</b> .	,	7	20	639	670		5	3	3	11	25	652	494
TOTAL	3	3	11	25	654	696		FOTAL	3	3	31	25	654	696
NUPBER (	F HII	'S 5	<b>43</b>	PER	CENTAG	E 0.9219		NUMHER !	!F HITS	. 5ª	52	PER	CENTAG	F 0.9168

# VERIFICATION OF 7 HOUR VISIBILITY FORECASTS WASHINGTON NATIONAL AIRPORT THE VERIFICATION CRITERION IS THE PERCENTAGE OF HITS

PERSISTENCE

SUBJECTIVE

			SER/E						08	SERVE	0		
		06	35476	.17			FORE-		_			5	TOTAL
FORE- CAST	1	2	3	4	5	TOTAL	CAST	1	2	3	4	,	
1	0	٥	1	0	6	7	1	0	O	0	0	0	0.
2	0	0	1	0	2	3	2	ı	0	0	0	3	•
3	0	1	1	1	6	9	3	0	0	2	4	16	22
4	0	0	4	4	15	23	4	0	ō	1	1	•	10
5	3	1	3	15	647	671	5	, 2	2	9	15	649	677
TOTAL	3	2	12	20	676	713	TOTAL	3	2	12	20	676	713
NUMBER (	DF HIT	S 65	2	PERC	ENTAGI	E 0.9144	NUMBER	OF HIT	\$ 65	2	FERC	ENTAGI	0.9144
•					c 9591				G	ROUÝ I	NG		
CLIMAT	010616		PECT: BSER1		ir Peri	SISTENCE			0	øSÉRV	ED		
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
1	0	0	0	0	٥	0	1	۵	Q.	0	G	0	0
.2	0	Q	C	0	0	ç	. 2	0	0	0	0	0	0
)° 3	0	0	0	0	0	0	3	0	0	1	1	3	5
4	0	0	0.	c	0	o	4	0	0	1	0	0	1
· •	3	2	12	20	676	713	5	Ì	2	10	19	673	707
TOTAL	3	2	12	20	676	713	TOTAL	3	2	12	20	676	713
NUMBER	OF HI		76	PER	CENTAG	SE 0.9481	HUM2ER	OF HI		74	PER	CENTAC	SE 0.9453
	LUND	CONT	INGEN	CY PR	OGNOSI	s		MULT1P	LE 01	SCRIM	ENANT	ANALY	/S1S
	205		OBSER							OBSER	VED		
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	ı	2	3	4	5	TOTAL
1	0	· 0	0	0	0	0	1	0	0	0	0	0	0
2	0	0	0		0	J	2	0	0	O	0	0	0
3	0	0	0		0	0	3	0	0	0	0	0	0
4	0	0	0		o	0	4	0	0	0	0	0	0
,7 . 5	3	z	12		676	713	5	3	2	12	20	676	713
TOTAL	3	2			676	713	FOTAL	3	2	12	20	676	713
NUPEEF	{ O⊭ H	175	676	PE	RCENTA	GE 0.4481	ЭНИН	R OF H	185	676	۶¢	RCENTA	GE 0.9451

### VERIFICATION OF 2 HOUR CEILING FORECASTS IDLEWILD INTERNATIONAL AIRPORT THE VERIFICATION CRITERION IS THE PERCENTAGE OF HITS

#### PERSISTENCE

OBSERVED	
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FORE- CAST	1	2	3	4	5	TOTAL
1	•	•	2	ı	4	24
2	7	38	7	3	. 5	60
3	٥		32	10	•	59
4	0	7	14	70	34	125
5	1	7	13	28	1136	1185
TOTAL	17	68	68	112	1186	1453

NUMBER OF HITS 1285 PERCENTAGE 0.8844

NUPBER OF HITS 1286

CLIMAT	OLOG1	CAL E	KPECT	ENCY	OF PER	SISTEMCE				GROUF	ING	•	
		(	ORSER	VED					•	OOSEF	VED		
FORE- CAST	1	2	3	4	5	TOTAL	FOR CAS		2	3	•	5	TUTÁL
1	7	5	2	0	3	17		3	3.	ė.	1	1	•
2	9	41	7	4	6	67	2	11	42	•	3	6	71-
3	0		32	10	•	59	3	G	6	29	10	•	51"
4	0	7	14	70	34	125	4	2	10	13	48	23	96
5	1	7	13	28	1136	1185	5	1	7	17	50	1152	1227
TOTAL	17	68	48	112	1188	1453	fof	AL 17	68	48	112	1100	1453

PERCENTAGE 0.5851

LUND CONTINGENCY PROGNOSIS SULTIPLE DISCRÍMINANT ANALYSIS **CBSERVED** DOSERVED FORE-CAST FORE-CAST TOTAL 23 ı 1 1 52 116 1193 5 TOTAL TOTAL

NUMBER OF HITS 1269 PERCENTAGE 0.0734

NIMMER OF HITS 1275 PERCENTAGE 0.8775

NUMBER OF HITS 1274

#### VERIFICATION OF 3 HOUR CEILING FORECASTS IDLEWILD INTERNATIONAL AIRPORT THE VERIFICATION CRITERION IS THE PERCENTAGE OF HITS

SUBJECTIVE

PERSISTENCE

		(	DBSER	VED					1	DUSER	VED		
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
1	9	9	2.	1	5	26	1	2	7	1	0	1	4 *
2	5	24	6	4	4	43	2	8	30	9	2	9	58
3	0	13	28	7	10	58	3	2	14	24	15		63
4	0	3	11	33	37	84	4	0	5	16	39	35	95
5	0		10	32	1024	1072	5	7	5	7	21	1027	1063
TOTAL	14	55	57	77	1080	1283	TOTAL	14	55	57	77	1080	1283
nu <sup>p</sup> ner	OF HI	75 11:	18	PE	CENTA	GE 0.8714	NUMAER	OF HI	75 11.	22	PE	RCENTAG	£ 0.8745
. CĻIMAI	rocog10	IAL : EX	(PECTE	ENCY	OF PEI	SISPENCE			C	GROUP:	ENG		
		Ģ	BSER	/ED					1	DBSER	VED		
FORE- CAST	-1	2	.3	4	5	10TAL	FORE- CAST	1	2	3	4	5	TOTAL
ı	÷ <b>5</b>	3	2 -	0	2	13 -	1	1	4,	0	ı	0	•
2	- <b>9</b> i	30	6.	5	7	57	. 2	'4	17	6	4	3	34
3	0	13.	2#	7	10	58	3	o	16	29	18	11	74
	0	3.	11	33.	37	84	4	6	4	10	55	29	45
Ś	C	6	10	32	1024	1072	5	•	14	12	32	1037	1104
HOTAL	:1,4	- <u>.</u> \$\$:	-57	77	1080	1283	TOTAL	14	55	57	71	1080	1283
NUPBER	:06:н11	rs 112	zó	PEA	Centại	€E √0+8739	NUMBER	OF HI	FS 11:	06	₽E	EENTAG	E 0.8620
	,LÜŅĞ	J.,			iģ <del>on</del> as	15	1		LE DI	SCRIM	IYAN	T ANALY	sis
			94 <u>Ş</u> ER	VED					4	DBSER	VED		
FORE- CAST	1.	2	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
1	'14	33	.8	5	9	89	1	3	5	0	o	1	•
, <b>2</b> -	C	0	0.	. 0	G	G	2	6	14	5	4	0	34
, 3	O	12	20	7	9	48	3	0	9	20	7	2	38
. 4	C	5	27	45	163	260	4	0	0	8	23	16	47
5	3.	5	2	50	879	<del>9</del> 06	5	5	22	24	43	1041	1155
TOTAL	技	55	57	17	1050	1283	FOTAL	14	55	57	77	1080	1783
NUFFER	DE HI	rs 9:	58	759	CENTA	GE 0.7461	HUPPEK	CF HI	fS 11	26	PE	ACENTAG	E 0.8776

### VERTELL ATTENDED OF A FETELLA, FOR CASTS THE WITE OF THE TOTAL STRUCKS THE VERTELLAND OF THE PERCENTAGE OF HITS

PERSISTENCE

50e3F\$1141

		Pti	< 21. I	. 4. 1					•	クセンドに			
		1	1,466.	25.70						CHSF-	48.1		
FTRE= CASI	1	,	•	4	•	11:126	(14.1 11.81-	1	2	3	4	5	TOTAL
i		7		i	11	21	1	•	2	5	ć	0	2
2	5	27	11	ė,	12	61	7	,	72	16	•	16	54
;	1	12	27	12	22	14	4	۶,	15	33	16	17	43
•	1	6	11	4 2	54	113	•	e	6	15	65	45	111
5	10	8	18	52	ICER	1175	5	7)	12	12	4 9	1109	11#5
TOTAL	23	60	76	511	1167	1451	ICIAL	23	ы	10	111	11#7	1451
NUFFER	ा ⊬ा	FS 11	ñУ	PĹ	ncfntai	GE C.4174	*HIMAE #	ef HI	TS 12	ራን	PE	<b>PCENTAG</b>	E 0.8332
CLIPAT	DLOC11	CAL E	xP&C1	each	tif PER	isistesce			i	GP1)(10	176		
		1	DASER	41-11					1	N#SF#	¥£D		
FORE- CAST	1	2	3	4	5	INTAL	FRRE- CASI	1	2	3	4	5	TOTAL
•	2	3	¢	5	1	5	1	1	3	2	o	2	6
2	5	21	5	4	7	42	7	-	1*	4	3	•	39
3	1	12	25	lv	15	43	3	Ŋ	13	28	•	5	43
4	c	2	4	*	14	2.	4	9	3	10	37	45	101
5	15	22	34	49	1150	2317	5	10	- 20,	26	45	1126	.255
TOTAL	23	60	10	111	1357	1451	TOTAL	23	<b>6</b> 0	710	111	1107	1451
YUPBER :	ባ፥ ታ፤፡	fS 12:	06	•€(	RÇEMTAC	E 0.9312	WIMBER.	हिंद भट्ट	FS 12	10	PE	RCENTAG	E 0.8399
	FiNO	C6A1	IŅGF'	CÝ PI	เกรฟอร์	<b>.</b> Ş.	<b>,</b>	ULTĮPI	re bii	SC41#	inės;	F AMALYS	SIS
		•	RBSER	AEU					4	DASER	<b>VEC</b>		
FOHE- CASI	1	2	3	4	5	TOTAL	FSRC- CAST _	1	2	3	•	5	TOTAL
1	5	6	2	0	11	2÷	1	e	၁	0	÷	0	ø
Z	•	28	9	*	15	64	2	7	20		2	4	39
3	1	10	23	4	18	57	3	n	14	21	•		49
4	•	•	<u> 1</u> 7	42	12	156	4	c	>	10	77	12	47
5	17		11	45	104#	1125	\$	16	23	31	#1	1163	1314
TOTAL	23	60	70	111	1197	1451	TOTAL	24	<b>♣</b> 0	10	111	1167	1451
<b>\</b> ७१स द	នេ <u>) (</u> )	15 11:	58	pį :	ICENTAG	i (0.14=1	V144(8	या ना	IS 17.	? <b>~</b>	Pęi	CENTAG	D_4=50

### VERIFICATION OF T HOUR CELLING FURLUASTS IFLEWILD INTERNATIONAL AIRPLAT THE VERIFICATION CRITCHION IS THE PERCENTAGE OF HITS

	PERSIZIENCE Orseryen								5	11416	3411		
			ORSE	BAFU						1385E	R vł D		•
FORE- CAST	ı	2	\$	•	5	DITAL	FRRE- CAST	1	,	3	4	5	TITA
1	4,	š	?	1	15	27	1	2	o	0	U	·	2
Z	ಕ	50	4	4	20	61	7	10	51	5	6	13	55
3	· 1	15	16	18	24	74	3	4	50	24	23	21	96
4	3	7	17	79	51	113	4	7	10	16	44	54	126
5	ŧ	16	21	69	1065	1177	5	6	10	11	53	1093	1173
TOTAL	24	61	40	176	iini	1452	TOTAL	24	61	60	126	1181	1452
NUPŘÉŘ	DE HI	<b>75</b> 11	36	φĘ	RCENTA	GE 6.7874	NUMBER	OF HI	rs 11	88	PF	RCENTA	GE 0.8182
CLIMAT	01.001	CAL E	XPECI	LENCA	(IF PFR	S7STFNGE				GROUI	P146		
			ORSE	EVED						0857	RVED		
FURE- CAST	1	2	3	4	ş	TOTAL	FORE- Cast	1	2	3	4	5	TOTAL
1	c	o	0	o	o	c	i	¢	0	o	9	0	0
2	ı	3	0	0	2	6	ž	2	13	4	3	7	29
3	1	7	12	10	17	47	3	0	3	6	4	0	13
4	0	0	0	0	¢	0	•	2	10	10	12	18	52
\$	22	51	48	116	1142	1399	5	20	35	40	107	1156	1356
FOTAL	24	63	- 40	176	1181	1452	TOTAL	24	61	60	126	1101	1452
NUPBEG .	OF 4i	îs Li	77	PĢI	RCENTAG	E 0.4106	R38MIIA	OF HI	F5 11	87	PEI	RCENTAG	GE 02 <b>0</b> 175
	£u⊕5	CONT	11 3C	** <b>&gt;</b> *(	OGNOS1	5		MULTIPA	LF 01'	CRIM	1 NAN1	ANALY	<b>*</b> 1¢
		ć	:"1FR	¥3D						TASER			
ORE-	1	2	3	4	5	TOTAL	FORE- CAST.	1	z	3	4	5	TOTAL
1	,	3	5	i	14	25	1	0	o	o	٥	o	٥
ž	A	16	,	7	19	55	2	4	*	٥	z	6	16
3	,	11	17	. 1	4	65	3	0	9	7	3	2	21
4	•	٧	17	11	44	100	4	2	8	14	14	6	44
z	å	75	21	10	1095	1206	5	į n	38	39	107	1167	1369
31 M	24	61	60	126	1181	1457	TOTAL	24	61	60		1181	1552
HIPRES :	ा भहर	5 t15	6	<b>9</b>	CFNTAS	1445.0	Himbin	हर भा	15 119	14	የሚ ዊ	CENTAG	F CLH273

### VERIFICATION OF 2 HOUR VISIBILITY FORECASIS IDLEMILD INTERNATIONAL ALPHORT THE VERIFICATION CRITERION IS THE PERCENTAGE OF HITS

#### PERSISTENCE

OBSERVED	
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FORE- CAST	t	ä	3	4	5	TOTAL
ì	14	6	3	4	6	33
2	4	6	4	1	4	19
3	4	7	17	5	9	42
4	0	4	6	10	30	50
5	3	4	12	29	1173	1221
TOTAL	25	27	42	49	1222	1365

NUMBER OF HITS 1220 PERCENTAGE 9 1938

CLIMAT	010010	AL E	KPECT	ENCY	GF PERS	SIGTENCE				(	GROUP	146		
		C	BSER	VED						•	DBS ER	VEB		
FORE- CAST	1	2	3	4	5	FOTAL		FORE- CAST	t	2	3	4	5	TOTAL
ı	14	6	3	4	6	35		ı	10	4,	ı	ı	2	18
2	4	5	1	0	2	12	•	2	6	6	5	2	7	24
3	2	0	3	0	4	9		3	0	2	3	1	4	10
4	c	c	0	0	0	0		•	0	6	9	0	0	0
5	5	16	35	45	1210	1311		5	9	15	33	45	1209	1311
TOTAL	25	27	42	49	1222	1365		TOTAL	25	27	42	49	3222	1365
NUPBER	0F HI	TS 12.	32	PE	RCENTAGI	E 0.9026		NUMBER	OF HI	rs 12:	28	PER	CENTAG	£ 0.8776

	LUND	CONT	INGEN	CY P	ROGNOSI	s	H	ULT IPI	E DI	CRIM	INANI	ANALY:	515
		(	DASER	VED					(	DESER	VED		
FCRE- CAST	1	2	3	4	5	TOTAL	FORE— CAST	ι	2	3	4	5	TOTAL
1	,	0	0	0	ı	3	1	11	4	2	2	2	21
2	0	0	Ú	0	0	c	2	0	2	1	ı	0	4
3	0	0	0	U	O	o	3	0	0	5	0	1	3
4	0	0	٥	0	0	¢	4	0	1	2	0	Ú	3
5	23	27	42	49	1221	1362	5	14	20	35	46	1219	1334
TOFAL	25	21	42	49	1222	1365	TOTAL	25	27	47	49	1222	1365
NUMBER	0F HI	FS 12.	23	96:	RCFNTAG	E 0,9960	VIIMHER	OF HI	FS 12	34	Pēi	RCENTAG	E 0.9040

### VERIFICATION OF 3 HOUR VISIBILITY FORECASIS IDLEWILD INTERNATIONAL AIRPORT THE VERIFICATION CRITERION IS THE PERCENTAGE OF HITS

de la company de

		PFR	SISTE	NC F						SU	HJECT	IVE		
		ſ	18SERV	/En						C	BSERV	EO		
FORE- CAST	ı	2	3	4	5	TOTAL		FORE- CAST	l	2	3	4	5	TOTAL
ı	14	4	2	>	6	31		t	Z	ı	0	ı	4	
2	4	3	7	o	6	19		2	9	9	5	3	6	32
3	3	1	1	4	14	29		3	6	6	14	3	17	46
4	0	q	7	ŧ	24	45		4	5	4	13	20	36	78
5	5	8	1.7	31 1	1151	1217		5	3	2	8	21	1138	1172
1014L	25	₹2	40	48	1201	1336		FOTAL	25	22	40	48	1201	1334
Nuprer	OF HI	TS 11:	83	PERI	CENTAG	£ 0.8955		4U48ER	OF HI	rs 118	3	PER	CENTAG	E 0.885
CLIPAT	01061	CAL E	XPECT	ENCY (	OF PER	SISTENCE				C	ROUP.	t-1G		
		9	UBSER	VED						C	BSER	/60		
FORE~ CAS1	ì	2	3	4	5	TOTAL		FORE- CAST	1	2	3	4	5	TOTA
l,	11	2	1	2	8	24		1	3	i,	0	C	1	5
2	0	ø	0	0	0	0	*	?	o	ð	0	6	C	0
3	ŷ	0	o	o	G	0		3	ŋ	0	4	0	4	
4	0	٥	C	Q	0	C		4	2	1	3	ı	Ł	13
5	14	20	19	46	1193	1312		5	20	20	33	41	1190	1310
TOTAL	25	22	40	48	1201	1336		TOTAL	25	52	40	48	1201	1336
NUPEER	UF HI	7S 12	04	PERI	CENTAG	E 0.9017		NUMBER	ef Ht	TS 11	98	PEF	RCFNTAG	E 0. <b>89</b> 6
	LUNO	CONT	INGEN	) Rq Y	IGNUSI	S			H) L [ ] P(	LE DIS	icr i m	(NANT	ANGLY	\$15
		•	DB SER	/En						(	)8SE41	<b>VED</b>		
FORE- Cast	1	2	3	4	5	TOTAL		FORE~ CAST	i	2	3	4	5	TOTA
ι	12	?	3	4	;	24		1	fo	2	S	3	2	19
2	o	9	0	0	e	0		2	c	0	0	ŧ	0	O
3	3	ı	5	1	4	14		3	1	1	ŧ	O	0	3
4	r	Ð	ŋ	U	С	c		4	O	0	0	Ú	0	0
>	30	19	32	43	1144	1299		5	14	19	37	45	1199	1314
TOTAL	25	27	40	40	1201	1 3 3 6		TCTAL	25	22	40	46	1201	1336
MILLE	)r +1	15 12	11	स्ट्र <b>स्</b>	CENTAG	E 11.2074		Minhte	ल ना	IS 12	10	rf;	REFULAC	F 5.905

# VERIFICATION OF 5 HOUR VISIBILITY FORECASTS IDLEMILD INTERNATIONAL AIRPORT THE VERIFICATION CRITERION IS THE PERCENTAGE OF HITS

			PERS	ISTE	ACE						Sun	JEC 1 I	VE	
			08	SERV	En							SERVE		
FORE- CAST	1	ļ	2	3	•	5	TOTAL	FGRE CAST		1	2	3	• 5	TOTAL
1	10	•	•	5	5	10	31	1		4				
2	2		4	3	2	9	20			7	3	0	1 2	,,
3	1		3	2	4	20	30	3		, 5	, ,	2	3 11	27
4	2		2	\$	4	32	45	•			2		27	36
5	12		9 1	14	35 1	1115	1105	5	1	-		4	9 44	60
JATOT	27	2.	2 2	t¥	47 1	146	2311	TOTAL					?7 1102 •7 1186	1160
HUPBER	£F H)	{T\$	1135		PERC	ENTA	GE 0.8658	MUMBI	er or	HETS	1129	٠	PERCENTI	ke 0.0612
CLIPAT	OLCGI	CAL :	EXPE	TEN	CY OF	PER	SISTENCE				GROL	P146		
			0656	RVE	•							AVED		
FORE- Cast	ı	2	3	)	4	5	TOTAL	FORE- CAST	1	2			. 5	TOTAL
ì	2	1	0	)	G	ı	4	ž.	ı	2				
2	0	9	ō	;	0	C	o	Z	1	•	1		•	•
3	0	0	0		0	,o	9	,		3	5	_	_	3
•	c	0	0		٥	\$	3	4		0	_	1	3	13
5	25	21	29	4	7 110	83	1307	5	24	17	23	0	0	0
TOTAL	27	22	29	4	7 11	<b>94</b>	1311	TÖTAL	27	55	29		1179	1311
C RENKING	# HI%:	5 11	A7	PI	Eacei	eta <b>s</b> e	0.9054	NUMBER	OF HE	f\$ 11	85	PER	ICENTAG	E 0.9039
	LUND I	COMT	inge	ICY I	ROGA	<b>10515</b>		•	#21 T T #	i F 24			AMALY:	
		(	DOSER	VED				·			DØSER		AMALY:	515
FORE- CAST	1	2	3	4	,	5	TOTAL	FORE- CAST	t	2	•		•	75 ( š i
1	15	10	10	•	3	3	71	t	0	0	۰	,		
2	1	2	0	0	1	3	16	2	0	0	0		5	0
3	o	1	ž	3		•	15	3	0	Q.	0	į.	0	0
4	. 1	1	0	1	:	1	4	4	0	0	-	0	0	0
5	13		17	37	1130	<b>D</b>	1205	5	27	22	0 29	6 47 1	C	•
TOTAL	27	22	29	47	1100	•	1311 .	TOTAL	27	22	29		1106	1311
WYBER OF	HITS	114	7	PEI	CENT	AGE	0.4749	MHGER (	3¢ HIT	S 118	<b>•</b>			0.4047

### VERIFICATION OF 7 HOUR VISIBILITY FORECASTS IDLEWILD INTERNATIONAL AIRPORT THE VERIFICATION CRITERION IS THE PERCENTAGE OF HITS

		PE	RSIST	ENCE							NRJEC			
		1	DASER	VED						•	OBSER	VED.		
FORE- CAST	1	5	3	4	5	TOTAL		FORE- CAST	ì	2	3	4	5	TOTAL
1	10	0	4	2	15	31		ı	7	ı	1	0	0	4
2	3	1	5	1	10	20		2	7	· 4	5	1	11	28
3	2	3	3	1	22	31		3	10	8	13	10	28	69
4	1	2	4	2	36	45		4	2	2	8	7	45	64
5	15	12	26	44	1114	1211		5	10	3	15	32	1113	1173
TOTAL	31	18	42	50	1197	1338		TOTAL	31	16	42	50	1197	1338
MUPBER	OF HI	f5 11	30	PER	CENTAG	E 0.8445		NUMBER	OF HI	TS 11	39	PE	RCENTA	E 0.0513
CLIMAT	OLOG10	CAL E	KPECTI	ENCY	OF PER	SISTENCE				(	ROUP	ING		
			DUSER	VED						C	BSERV	/ED		
FORE- CAST	1	2	3	4	5	TOTAL		FORE- CAST	1	2	3	4	5	TOTAL
1	O	c	0	c	0	0		1	0	O	0	0	0	0
2	٥	0	0	0	0	0	•	2	9	0	0	0	0	0
. 3	0	0	0	0	0	0		3	ŋ	0	0	0	2	2
4	0	0	0	0	٥	0		4	0	0	0	0	0	٥
5	31	18	42	50	1197	1338		5	31	18	42	50	2195	1336
TOTAL	31	10	42	50	1197	1336		TOTAL	31	1#	47	50	1197	1339
NUPBER	<b>OF</b> H11	rs 11º	97	PER	CENTAG	E 0.8946		MUMBER	0F #11	FS 119	95	PEF	RCENTAG	E 0.8931
	LUND	CONT	INGEN	CY PR	GGNOSI	\$			W)L T ( P)	. F. D.11	.cein	TMAN1	Γ ANALY	515
,		. (	DASER	VED							DBSER			
FORE- CAST	1	2	3	4	5	TOTAL		FORE- CAST	1	2	3	4	5	70TAL
1	e	ę	`	o	0	e		1	0	G	0	0	0	0
2	0	0	õ	0	c	0		2	0	0	0	e	0	e
3	0	0	0	o	0	e		3	0	0	0	0	0	0
4	c	0	0	0	С	O		4	С	0	0	0	0	a
5	31	18	42	50	1197	1336		5	31	18	42	50	1197	1338
TOTAL	31	18	42	50	1197	1338		FOTAL	31	18	42	50	1197	1338
nupber (	0F H11	rs 11 <sup>,</sup>	97	PER	CENTAG	E 0.8946		NUMBER	0F #1	TS 11:	+1	PE	RCENTAG	F 0.9946

### VERIFICATION OF 2 HOUR CEILING FORECASTS OFFUTT AFR. OMAHA, NEBRASKA THE VERIFICATION CRITERION IS THE PERCENTAGE OF HITS

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		PER	SISTE	MCE					su	BJECT	IVE		
		c	BSERV	C3V					0	RSERV	ΕĐ		
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
1	1	1	1	0	0	3	1	e	0	0	1	•	9
2	0	21	2	4	1	28	2	0	21	3	2	4	30
3	0	2	9	1	2	14	3	0	5	9	5	3	55
4	e	3	2	60	26	91	4	0	?	2	54	29	87
5	0	4	2	70	532	558	5	1	3	2	23	517	546
TOTAL	1	31	16	85	561	694	TOTAL	1	31	16	85	561	694
Nupber (	OF HIT	15 63	23	PER	CENTAG	E 0.8977	NUMBER (	OF HI	FS 60	01	PER	CENTAG	E 0.8660
CLIPAT	OLDG1	CAL E	XPECT	ENCY	OF PER	SISTENCE			(	GROUP	ING		
		i	08SFR	VED					1	OBSER	VED		
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	ı	2	3	4	5	TOTAL
1	o	0	0	1	O	1 .	ı	1	ı,	1	0	0	3
2	1	22	3	3	1	30	, ,	0	21	2	5	1	29
3	0	2	9	1	2	14	-	0	2	9	0	2	13
4	0	3	2	60	26	91	4	0	3	2	60	24	91
5	0	4	7	70	532	558	5	0	4	2	20	532	558
TOTAL	1	31	16	AS	561	694	TOTAL	1	31	16	85	561	694
NUPBER	OF HI	TS 6	23	PEI	RCENTAG	SE 0.8977	NUMBER	OF HI	TS 6	23	PEF	CENTAG	E 0.8971
		50		eu au	1064051		161			CCD 1M	IMAMT	ANALY	<b>.</b>
	FOUR		OBSFR		.001031	•	•••			DBSER			- 1
FORE- CAST	1	2	3	4	5	TOTAL	FCRE- CAST	1	2	3	4	5	TOTAL
ı	1	1	1	ũ	c	•	1	1	1	ı	0	0	3
2	0	21	2	4	1	28	2	0	19	3	4	7	28
3	C	2	9	1	2	14	3	0	2	4	1	1	8
4	•	4	3	65	69	141	4	0	3	3	54	10	70
5	ç	3	1	15	489	508	5	0	6	5	76	548	585
TOTAL	1	31	16	45	561	674	TOTAL	1	31	16	85	561	694
NUFBER	OF PI	TS 5	85	اعو	RCFNIAG	if 0.8429	NUMBER	ne 141	15 6	26	PFI	RCFNTAG	E 0.7020

### VERIFICATION OF 4 HOUR CEILING FORECASTS OFFUTT AFB, OMAMA, NEBRASKA THE VERIFICATION CRITERION IS THE PERCENTAGE OF HITS

		PE	1512	ENGE						Su	BJECT	IVE		
		(	BSER	/ED						C	BSERV	ŧθ		
FORE- CAST	ŧ	2	3	4	5	TOTAL		FORE- CAST	1	2	3	4	5	TOTAL
ì	ì	o	0	1	2	4		1	1	. 2	1	1	4	•
2	2	11	6	3	5	27		2	0	9	7	3	5	24
3	0	3	4	4	2	15		3	1	8	6		5	28
4	0	4	3	33	35	75		4	1	1	4	36	Ż9	71
5	O	6	8	23	494	531		5	0	4	5	16	495	520
TOTAL	3	24	23	64	538	<b>652</b>		TOTAL	3	24	23	64	538	652
NUKBER (	OF HI	rs 5	<b>\$</b> 5	PER	CENTAG	E 0.8359	•	NUMBER 1	OF HIT	1\$ 54	<b>57</b>	PER	CENTAG	E 0.8390
CL IMATO	)LOG1(	CAL EX	(PECT)	ENCY	OF PER	SISTENCE				Ó	ROUP I	ING		
		1	OBSERY	VED						C	BSERV	ED		
FORE- CAST	1	2	3	4	5	TOTAL		FORE- CAST	t	2	3	4	5	TOTAL
1	Q	1	6,	J	0	1		t	2	1,	1	2	2	•
2	3	12	7	5	8	35		2	0	0	0	0	Q	0
3	C	0	1	1	9	2		3	0	0	0	1	0	1
4	c	5	7	26	26	64		4	1	10	7	4	•	28
5	0	6	8	32	504	550		5	0	13	15	57	530	615
TOTAL	3	24	23	44	538	452		TOTAL	3	24	23	64	538	452
NUPBER (	DF H[1	TS 54	<b>13</b>	PER	CEYTAG	E 0.8328		NUMBER (	OF HIT	rs 52	16	PER	CENTAG	E 0.8221
	LUND				IOGNOSI	s		n	ULTIP				ANALY	·s15
		•	DBSER	VED						(	DBSER	VED		
FORE- CAST	1	2	3	4	5	TO, FAL		FORE- CAST	1	2	3	4	5	TOTAL
1	ŧ	c	0	3	2	4		1	1	0	0	0	1	2
2	2	11	۵	3	5	27		2	1	9	4	3	3	20
3	G	1	3	1	0	5		3	0	1	2	1	0	•
4	0	7	8	46	74	137		4	0	5	6	27	ı	45
5	0	5	6	11	457	479		>	1	9	11	33	527	581
TOTAL	3	24	23	64	536	652		TOTAL	3	24	23	64	538	652
NUPBER	OF HI	ts 5	20	981	RCENTA(	GE 0.7975		NUMBER	0F H <b>I</b>	TS 5	66	PER	CENTAC	SE 0.8681

### VERIFICATION OF & HOUM CEILING FORECASTS OFFUTT AFB. OMAHA. NEBRASKA THE VERIFICATION CRITERION IS THE PERCENTAGE OF HITS

		PE	RSEST	ENCE			211RTEC 11AE							
		(	OUSER	VED					•	Jaseri	VED			
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL	
1	1	0	0	1	1	3	1	0	2	0	ı	6	9	
2	ı	7	6	3	•	26	2	1	5	5	5	5	21	
3	e	2	4	4	4	14	1	0	2	6	•	5	22	
4	0	4	3	35	34	●0	4	1	3	3	36	30	<b>₽</b> ₹	
5	0	3	6	33	499	541	5	0	4	5	25	497	531	
TOTAL	2	16	19	76	551	664	TOTAL	5	14	19	76	551	664	
Number	OF H11	rs 5	46	PER	CENTAG	E 0.8723	<b>海里8</b> ●UK	OF HI	TS 5	44	PER	CENTAG	E 0.8193	
CLIMAT	010610	CAL E	KPECT	ENCY	OF PER	SISTENCE			(	GROUP	ING			
		(	OBSER	VED						DOSER	VED			
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	ı	2	3	4	5	TOTAL	
i	0	<b>,</b> 1	٥	0	0	1	. 1	2	1.	0	2	1	•	
2	3	3	6	5	12	28	2	0	0	0	0	0	9	
3	э	0	0	Ç	0	0	3	0	0	0	0	1	1	
4	C	6	6	24	23	59	4	۵	1	1	4	1	7	
5	0	6	7	47	516	576	5	0	14	18	70	548	650	
TOTAL	2	16	19	76	551	664	TOTAL	2	14	19	76	551	664	
NUPBER	OF HI	rs 5	43	PER	CENTAG	E 0.8178	NUMBER	OF HI	TS 59	54	PER	CENTAG	E 0.8343	
	LUND	CONT	INGEN	CY P9	OGNUS I	s	m	ULTIPI	LE 019	SCRIM	ENANT	ANALY	\$15	
		1	ORSER	VED					(	DOSER	VED			
FORE- CAST	ı	2	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL	
1	1	0	0	ì	1	3	1	0	0	0	1	0	1	
2	ı	4	5	5		24	2	1	7	7	5	2	72	
3	0	0	o	G	0	c	3	0	0	0	?	0	2	
4	0	8	10	40	74	132	•	0	5	4	25	13	47	
5	e	4	4	15	461	505	5	1	4		43	536	592	
TUTAL	2	16	19	76	551	664	TOTAL	2	16	17	76	551	564	
NUPPER	DF H11	15 5	12	rea	CFNTAG	E 0.7711	NUMBER (	58	PFR	CENTAG	F 0.8554			

### VERIFICATION OF 2 HOUR VISIBILITY FORECASTS OFFUTT AFB, OMAHA, NEBRASKA THE VERIFICATION CRITERION IS THE PERCENTAGE OF HITS

		PE	RSIST	ENCE					S	DBJEC	11VE		
			OUSER	AED						0853R	VED		
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	ı	2	3	4	5	TOTAL
1	3	0	0	0	0	3	1	3	0	0	0	1	4
2	0	4	0	1	3	8	2	0	0	Q	1	0	ı
3	0	3	4	4	4	17	3	0	5	5	5	6	21
4	0	0	•	6	• ,	22	4	0	3	7		14	32
5	2	1	7	10	624	644	5	2	0	9	7	614	434
TOTAL	5	8	21	21	439	694	TOTAL	5	•	21	21	439	694
HÚMBER	OF H19	s •	43	PEI	CENTAG	E 0.9265	NUMBER (	F HIT	rs 4	34	PEI	CENTAG	£ 0.9139
CLIMAT	0L0G10	AL E	XPECT	ENCY	OF PER	SISTEMCE				GROUP	ING		
			OBSER	AED						OGSER	AED		
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
1	3	0	0	0	٥	3 .	. 1	2	o	Ġ	0	0	z
Ž	0	0	0	0	0	0	2	0	1	0	0	0	1
3	0	6	5	•	6	21	3	0	4	•	5	5	20
4	0	0	2	0	1	3	4	0	ı	5	2	4	12
5	2	2	14	17	632	667	5	3	2	10	14	630 ·	659
YOTAL	5	•	21	21	639	£94	TOTAL	5		21	21	639	694
NUMBER :	OF HIT	S 6	40	PEI	ICÉNTAG	E 0.9222	NUMBER (	OF HIT	rs 6	41	PEF	CENTAG	E 0.9234
	LUND	CONT	INGEN	CY PR	DGNOS1:	s	MU		.E D1!	SCRIM	TMANI	AHALY	SIS
		1	DUSER	VED					(	DOSER	VED		
FORÈ- Cast	1	2	3	4.	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
1	2	4	0	1	3	10	1	3	0	0	0	1	4
2	0	0	9	0	0	0	2	0	0	0	0	0	0
3	б	3	5	4	4	16	3	ð	7	5	2	5	19
4	2	1	11	14	39	67	4	0	0	1	2	1	•
5	1	0	5	2	593	601	5	2	1	15	17	632	667
TOTAL	5	8	21	21	639	694	TOTAL	5	8	21	21	639	694
NUPBER (	OF HIT	<b>S</b> 6	14	PER	CENTAG	E 0.8847	NUPAFR (	F NIT	'S 6	42	Pf#	CENTAG	F 0.9251

### VERIFICATION OF 4 HOUR VISIBILITY FORECASTS OFFUTT AFR. DMAMA, NEBRASKA THE VERIFICATION CRITERION IS THE PERCENTAGE OF HITS

SUBJECTIVE

PERSISTENCE

		PER								,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
		C	BSER	AF.J.						(	JBSER\	/ED		
FORE- CAST	1	2	3	4	5	TOTAL		FORE- CAST	1	2	3	4	5	TOTAL.
ı	3	0	0	C	0	3		1	2	0	0	Ç	0	2
2	1	1	0	0	4	6		2	1	0	2	0	c	3
3	0	1	7	6	4	18		3	1	1	3	5	11	21
4	o	1	4	5	12	22		4	0	4	4	6	16	30
5	o	2	7	19	616	644		5	0	0	9	19	609	637
TOTAL	4	5	18	30	636	693		TOTAL	4	5	16	30	636	693
MUPBER (	F HIT	S 63	32	PE¶	CEYTAS	E 0.9120		NUMBER OF	HITS	. 5;	20	PER	CENTAG	E 0. <b>89</b> 47
CLIMATE	DFGC10	AL E	KPECT	EHCY	OF PER	SISTENCE					GROUP	ING		
		1	DBSER	VED							OGSER	VED		
FORE- CAST	1	2	3	4	5	TOTAL		FORE- CAST	ì	2	3	4	5	TOTAL
1	0	3	0	0	o	0	•	1	1	0	0	c	0	1
2	3		0	0	0	9	•	2	9	9	٥	o	0	o
3	1	0	2	0	0	1		3	1	2	3	3	0	•
4	0	0	٥	Ü	0	0		4	0	0	1	0	7	•
5	3	5	18	3C	636	692		5	2	3	14	27	629	<b>675</b>
TOTAL	4	5	18	10	636	693		TOTAL	4	5	18	30	636	693
NUPBER (	OF HET	S 6:	36	<b>P</b> E1	CENTAG	E J.9177		NUMBER OF	FHITS	. 6	33	PEA	CENTAG	F 0.9134
									-					
	LUND	CONT	NGEN	CY PR	120400	s		MUL	TIPLE	019	CRIM	INANT	AMALY	51S
		0	ASER:	AED						(	BSERI	/ED		
FORE- CAST	1	2	3	4	5	TOTAL		FORE- CAST	i	2	3	4	5	TOTAL
1	3	1	0	0	3	7		ı	3	0	C	o	ı	4
2	2	C	a	G	С	9		2	0	0	0	e	0	0
3	0	ı	7	6	3	17		3	3	0	ı	Q	0	1
4	C	0	4	4	10	18		4	1	1	ž	0	1	5
5	t	3	7	20	520	651		5	0	4	<b>t</b> 5	30	634	483
FOTAL	4	5	18	30	536	693		TOTAL	4	5	14	30	636	693
NUPRER C	IF HIT	\$ 63	14	PFQ	CENTAG	E 0.3149		Anahes ut	भार	e:	<b>5</b> #	PFR	CENTAG	F 0.4206

### VERIFICATION OF 6 HOUR VISIBILITY FORECASTS OFFUTT AFB, DMAHA, NEBRASKA THE VERIFICATION CRITERION IS THE PERCENTAGE OF HITS

PERSISTENCE OBSERVED							SUBJECTIVE QBSERVED								
FORE- CAST	1	2	3 3	<b>V</b> ED	5	TOTAL		FCRE- CAST	1	2	3	4	5	TOTAL	
1	3	o	0	0	o	3		1	0	c	0	0	0	0	
2	٥	9	1	0	6	7		2	C	0	7	0	0	2	
3	0	2	3	5	3	13		3	3	0	c	5	5	13	
4	0	0	2	3	15	20		4	0	1	1	4	12	18	
5	0	0		15	552	575		5	0	ı	11	14	559	585	
TOTAL	3	2	14	23	576	616		TOTAL	3	2	14	23	576	618	
NUPSER	OF HIT	rs 5	<b>4</b> 1	PEG	CENTAG	E 0.9078		NUMBER (	OF HIT	S 50	<b>b</b> 3	PE	CENTAG	E 0.9110	
CLIMAT	OF621C	AL E	XPECT	ENCY	OF PER	SISTENCE				•	ROUP	ING			
		,	DUSER	VED						C	DUSER	VED			
FORE- CAST	1	2	3	4	5	TOTAL		FORE- CAST	1	2	3	4	5	TOTAL	
ı	0	٥	0	0	0	9	•	1	2	Q	0	0	0	2	
2	0	0	O	0	Đ	С		2	0	0	9	G	0	•	
3	0	0	0	Ĵ	C	a		3	O	၁	1	1	2	•	
4	ō	0	0	0	0	0		4	0	G	٥	0	0	0	
5	3	2	14	23	574	616		5	1	2	13	55	574	612	
TOTAL	3	2	14	23	576	616		TOTAL	3	2	14	23	576	618	
NUPBER I	OF HIT	\$ 5	76	PER	CENTAG	£ 0.9320		NUMBER (	OF HIT	S 51	77	PER	CENTAG	E 0.4337	
	LU40	CONT	INGE#/	CY PR	120#20	s		я	ULTIPE	E DI:	SCRIM	SNAN!	CHALY	s 1 <b>s</b>	
			DASER	VED							DØSER	YED			
FURE- CAST	1	2	3	4	5	TOTAL		FORE- CAS:	1	2	3		5	10141	
1	0	0	0	0	C	0		1	1	0	0	0	0	ı	
2	c	E	0	9	0	0		2	0	0	0	1	c	1	
3	3	2	4	5	9	23		3	ပ	1	0	0	1	\$	
4	C	ø	3	10	57	70		4	0	0	0	0	0	0	
5	0	0	?	8	510	525		5	2	ı	14	22	575	614	
TOTAL	3	2	14	23	516	615		TOTAL	3	2	14	23	576	618	
MUPRER	ne +11	rs s	24	PFI	CFNTA	E 0.8479		MUMBER	CE HIS	5 5	76	PFI	ICENTAG	£ C.0370	

## VERIFICATION OF 2 HOUR CEILING FORECASTS RANDOLPH AFB. SAN ANTONIO. TEXAS THE VERIFICATION CRITERION IS THE PERCENTAGE OF HITS

PERSISTENCE BASERVED								SUBJECTIVE OBSERVED							
										u	-3647	τυ			
DRE- AST	1	2	3	4	5	TOTAL		FORE- CAST	1	2	3	4	5	TOTAL	
1	•	2	4	1	٥	11		1	1	1	2	1	1	•	
2	0	4	7	2	1	14		2	2	•	•	2	¢	16	
3	c	6	74	27	14	123		3	1	•	75	26	14	126	
4	o	0	14	52	1.8	94		4	0	1	19	48	27	95	
5	c	2	14	19	425	460		\$	9	9	11	22	416	449	
GTAL	4	14	113	101	448	692		TOTAL	4	14	113	101	460	692	
waser of	F HIT	s 5	59	PER	CENTAG	E 0.0076		NUMBER	CF HII	r\$ \$	46	PER	CENTAG	E 0.7090	
CLIMATOL	LOGIC	AL E	KPECT	EWCY	OF PER	SISTENCE				1	CADUP	145			
		1	DASER	YED							COSEA	AcD			
ORE- CAST	1	2	3	4	5	TOTAL		FORE- CAST	ì	z	3	•	5	TOTAL	
,	4	2	4	1	•	11		1	3	4.	4	1	•	12	
2	0	1	1	0	0	2	•	2	0	1	3	1	e	5	
3	0	•	80	29	17	135		3	1	•	75	24	37	123	
4	c	0	14	52	18	84		4	9	2	14	35	25	191	
5	0	2	14	19	425	460		5	G	1	12	29	413	451	
OTAL	4	14	113	101	460	692		TOTAL	4	14	113	191	446	692	
STANSER ()	OF HE	rs s	542	PE	<b>CENTA</b>	€ 0.8121		MINEER	OF HI	3S !	552	<b>≯</b> Ei	KE41AG	£ 9.7977	
	E COMO	COM	T INGS	ENCY P	40C#05	ıs			mult II	<b>ለ</b> ቴ ወ	iscai	m ( scan	I ANGLI	rsis	
			0855	MYEC							OBSE	Cava			
FORE- CAST	ı	2		3 4	. 5	TOTAL		FORE- CAST	ì	2	3	• •	5	TOTAL	
1	4	2		4 1		11		1	•	3	•	, 1		13	
2	٥			<b>6</b> 1	1 1	11		2	G	1		) 1	( - •	5	
3	9		7 7		5 14	126		2	0	4	7:	37	18	137	
4	6		) i	5 5	, ,	191		4	e	•	1	• •1	13	68	
5	c		2 1		0 412	449		5	0		2 1	5 2	5 429	469	
101AL	•	1	-		1 460	697		TOTAL	•	14	- 11	, 10	1 460	692	
MUFBER	o,∓ и	115	545	,	ERCENT	IGE C.1876		M <b>M</b> E	R 15% H	1115	553		ERCENTI	LGE 6.794	

### VERIFICATION OF 4 HOUR CEILING FORECASTS RANDOLPH AFA, SAN AMTONIO, 1EXAS THE VERIFICATION CRITERION IS THE PERCENTAGE OF HITS

		PE	25151	ENCE					S	UBJEC	TIVE				
GBSERVED										UBSER	VED				
FORE- CAST	ı	2	3	4	5	TOTAL	FORE- CAST	ı	2	3	4	5	TOTAL		
ì	0	4	4	2	1	11	1	o	0	0	0	0	0		
2	0	2	9	0	2	13	2	0	2	5	1	o	8		
3	0	3	39	29	49	120	3	0	6	49	24	7	82		
4	0	1	11	40	26	78	4	0	1	19	48	47	115		
5	o	0	18	35	405	458	5	. 0	1	12	33	429	475		
TOTAL	Ō	10	81	106	483	680	TOTAL	0	ŧO	81	106	483	68G		
NUPBER	0F H1	rs 4	86	ÞEF	RCENTAG	E 0.7147	) RZBMUM	3F HI	TS 5	24	PEI	ICENTAG	E 0.7706		
CLIMAT	0.0610	AL E	(PECT	FYCY	OF PER	SISTENCE			Ó	SKOUP	ING				
		(	185ER	VED			OBSERVED								
FORE- CAST	ı	2	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL		
1	0	4	4	2	1	11	, 1	0	4'	2	1	1	•		
2	ð	0	2	0	0	2	2	C	1	5	1	2	9		
3	C	4	39	16	7	66	3	0	4	38	5.,	31	97		
4	c	2	16	40	57	117	4	0	1	14	35	26	76		
5	e	υ	18	48	418	484	5	o	0	22	45	423	490		
TOTAL	0	10	81	106	483	680	TOTAL	0	10	61	106	483	480		
NUFBER (	OF H[1	\$ 49	7	PER	CENTAG	E 0.7309	NUMBER O	F HI	rs 4º	97	PER	CENTAG	E 0.7309		
	LUND	CONTI	NGEN	CY PR	OGNOSI	s	MU					AN/LY			
		(	BSEK	VED					(	DRSER	VED				
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL		
i	0	4	3	2	1	10	1	o	3	2	C	0	5		
2	О	2	5	0	0	7	?	0	0	0	0	0	0		
3	0	3	42	24	40	109	3	0	5	44	30	28	107		
4	0	ı	13	45	38	97	4	0	1	9	23	13	45		
_	o	0	18	35	404	457	5	0	1	27	53	442	523		
5	Ç,	•	.,				•		-						

NUMBER OF HITS 493 PERCENTAGE 0.7250

PERCENTAGE 0.7485

YOMBER OF HITS 509

## VERIFICATION OF 6 HOUR CEILING FORECASTS RANDOLPH AFB, SAN ANTONIO, FEXAS THE VERIFICATION CRITERION IS THE PERCENTAGE OF HITS

		PER	SISTE	NCE			JV17J2LAUZ CAVRAZAO									
		0	BSERV	ΕĐ					OI.	\$36×46	. 4					
FORE- CAST	1	2	3	Ļ	5	TOTAL	FORE- CAST	1	2	3	•	5	TOTAL			
1	0	1	3	5	2	11	ì	0	0	0	1	0	1			
2	0	ı	6	3	3	13	>	1	2	6	1	0	10			
3	7	6	29	23	59	119	3	1	7	46	21	26	103			
4	0	2	18	28	30	78	4	c	ı	19	38	38	96			
5	1	3	24	40	389	457	5	1	3	7	38	419	468			
TOTAL	3	13	80	99	483	678	TOYAL	3	1.3	80	94	483	678			
NUMBER (	OF HET	'S 41	47	PER	CENTAGI	E 0.6593	NUMBER	OF HIT	rs 50	7	PERI	CENTAGE	0.74.8			
CLIMATO	n octo	'AL F)	epec 1	ENCY	of rea:	SISTENCE			c	SROUP 1	r#G					
CLIMATO			DRSER						•	BSERV	ED					
FORE- CAST	ı	2	3	4	5	TOTAL	FORE- Cast	1	2	3	4	5	TOTAL			
		_			•		1	0	1	0	2	0	3			
ι	C	0	1	0	0	1 2		0	ı	4	3	1	9			
2	c	0	2	0	9	66	3	1	3	27	20	18	69			
3	2	7	28	20		23	4	ı	5	8	20	43	77			
4	0	2	9	6	6 468	586	5	ı	3	41	54	421	520			
5 1GTAL	1	13	40 80	73 99	483	678	TOTAL	3	13	80	99	483	678			
NUPBER	OF HI	TS !	502	PE	RCENTAC	GE 0.7404	NUMBE	R OF HI	15 4	.69	PE	CENTAG	E 0.6917			
	LUNC	CGN	r I NGE!	NCY P	ROGNOS	ıs	MULTIPLE DISCRIMINANT ANALYSIS									
			OBSE	RVED						OBSER	AED					
FORE~ CAST	ı	2	3	4	. 5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL			
1	0	1	3	9	. 2	11	i	0	t	2	2	0	5			
1	2					45	2	0	0	1	0	o	1			
2	0					3	3	2	1	34	22	12	77			
3	6					163	4	0	0	10	16	16	42			
4 5	1					456	5	1	5	3:	59	455	553			
TOTAL	3					67d	TOTAL	. 3	13	80	99	483	678			
NUPBFR	: AF H	115	440	۶	ERGENTA	GE 0.6490	Numbe	R OF H	115	505	þf	RCENTA	GE 0.7448			

### VERIFICATION OF 2 HOUR VISIBILITY FORECASTS RANDOLPH AFB. SAN ANTONIO, TEXAS THE VERIFICATION CRITERION IS THE PERCENTAGE OF HITS

PERSISTENCF						SARISSERIS								
			OHSER	vro.			ORSERVED .							
FORE-	ì	2	3	4	5	TOTAL	FORE- Cast	ı	2	3	4	5	TOTAL	
ı	4	Ċ	3	1	4	12	1	ı	ı	2	Ú	0	4	
2	1	ì	,	1	r	5	2	2	0	1	0	2	5	
3	3	0	7	3	5	), H	3	4	0	8	6	7	25	
4	0	1	6	4	7	18	4	0	1	8	6	13	28	
5	1	:	5	15	626	644	5	2	2	4	12	620	640	
TOTAL	9	4	23	74	642	702	FOTAL	3	4	23	24	642	702	
NUPPER	0F +11	15 6	<b>,4</b> 2	υξι	RCENTAS	E 0.9145	MIMKER (			35	PE:	RCENTAG	E 0.9046	
CLIMAT	orogic	AL E	XPECT	ENCY	OF PER	SISTENCF			. (	SROUP	FYG			
		•	ORZEK	VEC					0	HSER	VĒŪ			
FORE~ CAST	1	2	3	4	5	TOTAL	FCRE- CAST	1	į	3	4	s	TOTAL	
1	4	0	3	1	2	10	1	3	0	3	2	3	11	
2	C	0	1	0	0	1	2	1	0	ı	0	0	2	
3	2	)	6	1	4	14	3	2	1	7	0	5	15	
4	0	0	•	1	0	3	4	9	э	2	7	2	6	
5	3	3	11	21	636	574	5	3	3	10	20	632	468	
TOTAL	9	4	23	24	642	702	TOTAL	9	4	23	24	642	702	
NUFBER (	OF HIT	\$ 6.	47	nEd	CENTAG	E 0.9717	NUABER U	FHLT	5 64	.4	PER	CENTAG	F 0.9174	
	FUND	CONT	INGEN	EY PR	ពិទីវេទិស	5	му	LŸIPL	.E D15	SCR EM	INANT	ANALY	515	
		+	GRSEA	VED					(	DRSER	VE D			
FORE- CAST	ı	\$	3	4	13	TOTAL	FORF- CAST	i	2	3	•	5	TOTAL	
t	4	0	7	1	4	1?	1	2	٥	2	ŧ	o	5	
2	1	1	2	1	c	5	ŧ	3	3	0	0	0	1	
3	3	0	7	4	6	26	3	7	٥	5	4	1	12	
4	c	3	10	14	89	116	4	0	ø	0	0	O,	0	
5	1	. 0	:	Ĺ	5-1	54.)	\$	4	4	lb	19	641	686	
FOTAL	,	4	23	24	642	768	ISTAL	4	4	23	24	642	702	
humber :	ar ett	\$ 5	69	ntñ	CENTAG	E 0.4105	MUMBER IS	f HII	15 64	•8	PŧR	GENTAG	F 0.9231	

### VERIFICATION OF 4 HOUR VISIBILITY FORECASTS RANDOLPH AFB, SAN ANTONIO, TEXAS THE VERIFICATION CRITERION IS THE PERCENTAGE OF HITS

		PE	R\$/\$1	ENCE					\$	URJEC	TIVE		
			OBSER	VED					1	DUSER	VED		
FORE- CAST	ì	5	3	4	5	TOTAL	FORE~ CAST	1	2	3	4	5	TOTAL
1	1	0	2	1		12	1	0	٥	0	0	0	0
2	э	0	2	0	3	5	2	0	0	0	0	ı	1
3	o	0	4	3	8	15	3	8	0	7	4	5	16
4	0	C	4	2	12	18	4	0	0	4	3	13	20
5	0	0	7	8	617	632	5	ı	0	8	7	629	645
TOTAL	1	0	19	14	648	682	TOTAL	i	3	19	14	648	682
NUMBER	OF HIT	'S 6	24	PE	RCENTAG	€ 0.9150	NUMBER C	F HII	'S 6	39	PEI	RCENTAG	E 0.9370
CLIHATO	of a e i c	AL E	XPECT	ENCY	OF PER	SISTENCE			,	SKOUP	Ing		
		1	DBSER	VED					1	<b>M</b> SER	VED		
FORE- CAST	ı	2	3	4	5	TOTAL	FORE- L_ST	1	2	3	4	5	TOTA2
ı	O	0	0	ı	0	1	1	ı	0	ı	0	3	7
2	0	0	0	0	0	9	. 2	0	0	C	0	0	0
3	0	0	1	3	1	5	3	0	0	3	3	1	7
4	0	0	0	0	0	0	4	0	0	ı	0	7	•
5	1	0	18	10	647	676	5	C	0	34	11	635	460
TOTAL	1	0	19	14	648	682	TOTAL	1	0	19	14	640	482
NUMBER (	DF HET	\$ 64	48	PER	CENTAG	E 0.9501	NUMBER O	F HIT	S 63	19	PER	CENTAG	0.9370
	r.uno	CONT	INGEN	CY PR	o <del>gn</del> osi	s	MU	LŢIPL		CRIM	INANT	ANALY:	sis
		(	OBSER	VED					C	#SER!	VED		
FORE~ CAST	1	2	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
1	ı	U	2	1	8	12	1	1	0	3	0	1	5
2	Ç.	0	5	Ì	4	10	2	0	c	0	0	0	•
3	0	0	1	2	7	10	3	0	0	1	0	0	1
4	c	0	10	9	130	149	4	0	0	0	c	0	0
5	ō	0	1	1	499	501	3	0	0	15	1+	647	476
TOTAL	1	C	19	14	648	682	TOFAL	1	0	19	14	648	442
NUPBER (	DE HIT	<b>3</b> 51	10	PER	CENTAG	F 0.7478	NUMBER D	? H17	S 64	9	PER	CENTAGI	0.9516

### VERIFICATION OF 6 HOUR VISIBILITY FOREGASTS RANDOLPH AFB, SAN ANTONIO, TEXAS THE VERIFICATION CRITERION IS THE PERCENTAGE OF HITS

		PER	SISTE	NCE						Su	BJECT	145		
		C	BSER	/E0						C	BSERV	ED		
FORE- CAST	ı	2	3	4	5	101AL		FURE- CAST	ı	2	3	4	5	TOTAL
ı	0	0	2	3	7	12		ı	0	0	0	0	1	1
2	0	0	2	0	3	5		2	0	0	0	c	1	ı
3	0	1	0	1	13	15		3	1	0	4	5	7	17
4	C	0	o	2	16	18		4	0	1	1	1	13	16
5	1	1	10	10	610	632		5	0	ì	9	10	627	647
FOTAL	1	2	10	16	649	682		TUTAL	1	2	14	16	649	682
NUMBER (	OF HIT	S 61	12	PER	CENTAG	E 0.8974		NUMBER O	F HITS	5 63	32	PER	CENTAG	E 0.9267
CLIMAT	010610		XPECT	ENCY	OF PER	SISIENCE				(	GROUP	ING		
		(	OUSER	veo						(	DBSER	VED		
FORE- CAST	1	2	3	4	5	TOTAL		FORE- CAST	1	2	3	4	5	TOTAL
1	c	0	0	1	c	1		1	0	ο.	3	2	5	10
2	0	0	0	G	c	o	-	2	0	0	C	0	0	0
3	0	0	0	0	c	O		3	0	0	0	1	2	3
4	0	0	0	0	c	e		4	0	0	0	0	0	0
5	1	2	14	15	649	681		5	1	2	11	13	642	669
TOTAL	á	2	14	16	649	682		TOTAL	1	2	14	16	649	682
NUPBER (	OF HIT	\$ 6	49	PEI	CENTAG	E 0.9516		NUMBER (	OF HIT	S 6	42	PER	CENTAG	E 0.9413
	LUND				OGNOS1:	s		pec.	ILTIPL	E D19	SCRIM UBSER		ANALY	\$15
FORE-	1	2	385ER1	4	٤	TOTAL		FORE- CAST	1	2	3	4	5	TOTAL
<u>-</u>	•	-	•	•	-	· · · · · ·			-	-	-		-	3
ı	0	0	2	3	7	13		ı	0	0	C	0	0	0
2	ı	0	2	c	3	5		5	0	0	0	e	0	0
3	c	ı	6		122	131		3	0	0	0	3	1	1
4	c	0	ð	1	9	10		4	0	0	0	0	Ç	o
5	1	1	4	10	508	524		5	1	?	14	16	648	681
TOTAL	t	2	14	16	649	692		TOTAL	1	2	14	16	649	682
NUMBER (	DF H <b>11</b>	\$ 5	15	υĘα	IÇEN TAG	E 0.7551		ካነካክርቁ ፣	'F HIT	5 6	48	#J4	CENTAG	F 0.9501

### VERIFICATION OF 2 HOUR CEILING FORECASTS MCGUIRE AFB, WRIGHTSTOWN, N.J. THE VERIFICATION CRITERION IS THE PERCENTAGE OF HITS

			LSIST							BJEC			
		,	OBSER	VED					C	BSER	/ED		
FORE- CAST	ı	,	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
ı	8	3	ı	0	1	13	i	5	1	1	0	4	11
2	3	13	3	2	0	21	5	3	10	5	0	2	20
3	0	5	22	6	3	36	3	2	11	16	8	6	43
4	0	1	9	29	25	64	4	0	1	13	33	23	70
5	3	1	4	29	440	477	5	4	0	4	25	434	467
TOTAL	14	23	39	66	469	611	101AL	14	23	37	66	469	611
NUMBER	OF HI	IS 5:	12	PER	CENTAG	E 0.8380	NUMBER	0F H11	FS 49	<b>)</b> \$	PER	CENTAG	E 0.8151
CL IMAT	OLOG 10	CAL E	KPECT	ENCY	OF PER	SISTENCE				SROUP	ING		
		1	DBSER	VED					(	)8SER	VED		
FORE- CAST	t	2	3	4	5	TOTAL	FORE-	1	2	3	4	5	TOTAL
1	8	3	1	0	1	13	1		4	1	o	1	14
2	2	8	2	1	c	13	2	3	11	3	1	0	10
3	1	10	23	7	3	44	3	0	6	26	8	3	43
4	٥	1	9	58	25	64	4	0	1	5	30	72	58
5	3	ı	4	59	440	477	5	3	1	4	27	443	478
TOTAL	14	23	39	66	469	611	TOTAL	14	23	39	66	469	611
NUMBER	OF HE	rs 5:	08	PER	CENTAG	E 0.8314	NUMBER	OF HIT	TS 51	18	PER	CENTAG	E 0.8478
	LUND		INGEN		OGNOSI	s	,	WLTIPL		CRIM IBSERI		ANALY	515
FURE- CAST	ι	2	3	4	5	TOTAL	FORE- CAST	ı	ŧ	3	4	5	TOTAL
1	8	3	1	0	1	13	1	8	3	1	1	0	13
2	3	14	3	2	C	22	2	2	12	3	0	0	17
3	0	4	24	11	7	46	3	ı	6	25	5	2	39
4	e	0	4	11	0	15	4	0	1	4	26	12	43
5	3	2	7	42	461	515	5	3	t	6	34	455	499
TOTAL	14	23	39	66	469	611	TOTAL	14	23	39	66	469	611
NUPHER	n <b>r</b> 1411	15 5	18	PER	CENTAG	E 0.8478	HUMPER	CE 411	rs 52	16	rea	CENTAG	E 0.8609

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# VERIFICATION OF 4 HOUR CEILING FORECASTS MCGUIRE AFB, WRIGHTSTOWN, N.J. THE VERIFICATION CRITERION IS THE PERCENTAGE OF HITS

				IS ESTE						\$	J3tau 83280			
	FORE- CAST	1	2	3	4	5	TOTAL	FORE CAST	- 1	2	3	4	5	TOTAL
	ı	0	4	2	o	3	3	t	o	3	0	0	2	5
	2	8		7	2	1	18	2	į	4	4	1	1	11
	3	ı	2	16	4	4	21	3	0	7	14	9	5	35
,	4,	0	5	6	16	29	56	4	0	2	9	23	58	67
\	5	0	1	7	27	374	409	5	0	4	11	16	375	406
•	PUTAL	1	20	38	49	411	519	ATOTA	L 1	20	38	49	411	519
	HUPBER	ÚF H11	r\$ <b>4</b> 1	14	PER	CENTAG	E 0.7977	NUMB	ER OF H	115 4	16	P E R	CENTAGE	0.8015
	CL IHAT	OLAGIC	AL EX	(PECTE	NCY -	OF PER	SISTENCE				GROUP	ING		
			C	OBSERV	/ED						ORSER	VED		
	FORE- CAST	1	5	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
	i	c	1	o	0	1	2		· 0	4.	3	0	2	9
	-	0	5	3	0	1	9	2	0	8	5	1	1	15
	į	1	5	20	6	4	36	3	1	2	14	5	2	24
	4	0	•	1	4	14	23	4	0	3	6	13	9	31
	5	C	5	14	39	391	449	5	0	3	10	3C	397	440
	TO! AL	1	20	38	49	411	519	TOTA	L 1	20	38	49	411	519
	NUPRER	OF H11	rs 4;	20	PER	CENTAG	E 0.8092	NUMB	ER OF H	ITS 4	32	PER	CENTAGE	0.8324
		LUND	CONT	INGEN	CY PF	lOGNOS1	15		MULTI	, PLE D	15C21*	IINAN'	T ANAL F	\$15
				OBSEP	VED						OBSER	EVED		
	FORE- CAST	1	, 2	3	4	5 `	TOTAL	FORE CASI		2	3	4	5	TOTAL
	1	c	4	2	0	3	9	1	0	2	1	0	0	3
	2	0	6	10	4	3	23	2	0	2	1	0	0	3
	3	1	5	15	7	3	31	3	1	. 11	18	10	2	42
	4	c	4	6	52	40	77	4	0	2	3	11	3	19
	5	0	1	5	16	362	384	5	a	3	15	28	406	452
	TOTAL	1	20	38	49	411	519	101	AL I	20	38	49	411	519
	NUPBER	. <b>उ</b> ह भ1	TS 4	05	PC	RCENTA	GE 0.7803	NUM	SER OF H	1115	437	Pł	RCFNTAG	F 0.9470

### VERIFICATION OF 6 HOUR CEILING FORECASTS MCGUIRE AFB, WRIGHTSTOWN, N.J. THE VERIFICATION CRITERION IS THE PERCENTAGE OF HITS

	•	PE	RSIST	ENCE						St	181EC	11VE		
		(	DBSER	VED						•	DBSER	VED		
FORE- CAST	i	2	3	4	5	TOTAL		FORE- CAST	1	2	3	4	5	TOTAL
1	c	o	3	0	6	9		i	o	1	1	1	3	6
2	Z	2	6	6	2	18		2	1	4	4	0	4	13
j	ı	6	8	7	6	28		3	1	4	12	9	6	32
4	1	5	9	18	23	56		4	2	3	6	31	26	**
5	ı	5	5	32	368	408		5	1	3	8	22	366	400
TOTAL	5	15	31	63	405	519		TOTAL	5	15	31	63	405	519
NUMBER (	OF HI	rs 31	96	PEF	ICENTAG	€ 0.7630		NUMBER (	DF HI	ts 4	13	PEF	CENTAG	SE 0.7958
CLIMATO	010610	CAL E	XPECT	ENCY	OF PER	SISTENCE				(	GROUP	ING		
		1	OBSER	VED						1	OBSER	VED		
FORE- CAST	i	2	3	4	5	TOTAL		FORE- CAST	ı	2	3	4	5	TOTAL
ı	0	0	1	0	1	2		1	0	0,	2	0	3	5
2	2	1	1	2	C	6	•	2	1	t	2	2	0	6
3	1	7	13	11	8	40		3	0	1	5	2	5	13
4	c	0	0	0	0	0		4	1	5	6	16	•	37
5	. 2	7	16	50	396	471		5	3	8	16	43	388	458
TOTAL	5	15	31	63	405	519		TCTAL	5	15	31	63	405	519
NUMBER	OF HI	TS 4	10	PEI	CENTAG	E 0.7900		NUMBER (	UF HI	TS 4	10	PER	CENTAG	E 0.7900
	LUND	CONT	INGEN	CY PR	OGNOSI	s		MU	ILTIPL	.e dîs	CRIM	INANT	RHALY	<b>s</b> 15
		(	ORSER	AEU						C	BSER	/E0		
FORE~ CAST	ι	5	3	4	5	TOTAL		FORE- CAST	1	2	3	4	5	TOTAL
1	0	0	ı	1	3	5		1	0	o	0	0	0	0
2	c	2	7	9	59	17		2	0	1	1	0	1	3
3	5	9	10	13	4	38		3	2	9	13	7	3	34
4	C	1	4	11	10	26		4	C	1	4	15	2	22
5	3	3	9	SS	129	373		5	3	4	13	41	399	460
TOTAL	5	15	31	63	405	519		TOTAL	5	15	31	63	405	519
NUFPER (	)F H[1	rs 3:	52	PER	CENTAG	E 0.6782		NUMBER (	IF H[1	15 42	? <del>8</del>	PĘR	CENTAG	E C.8247

### VERIFICATION OF 2 HOUR VISIBILITY FORECASTS MCGUIRE AFB, WRIGHTSTOWN, N.J. THE VERIFICATION CRITERION IS THE PERCENTAGE OF HITS

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PERSISTENCE

			085EF	VED							OBSER	VED		
FORE- CAST	1	2	3	4	5	TOTAL	FOI CAS		ι	2	3	4	5	TOTAL
1	11	5	0	Đ	C	16	1	l	6	5	3	0	e	14
2	2	6	6	ı	0	15	•	<b>?</b>	3	2	7	1	2	15
3	1	4	37	10	6	58	2	3	2	7	41	14	9	73
4	C	0	22	21	11	54	4	•	2	0	20	25	44	78
5	0	1	15	22	431	469	•	3	1	2	9	14	404	432
TOTAL	14	16	<b>#</b> 0	54	448	612	TO	TAL	14	16	80	54	448	612
Nurber	OF HI	TS 5	06	PEI	CENTAG	E 0.8268	NUF	MER (	OF HE	TS 4:	80	PEI	RCENTAG	E 0.7843
CLIMAT	roLogi	CAL E	XPECT	ENCY	OF PER	SISTENCE				ı	GROUP	ING		
			OBSER	VED							DBSER	VED		
FORE- CAST	1	2	3	4	5	TOTAL	FOR		1	2	3	4	5	TOTAL
1	11	5	0	0	0	16	. 1	L	12	7	2	0	0	51
2	0	4	2	1	0	7		?	1	1	1	0	0	3
3	3	6	41	10	6	66	3	1	0	8	30	13	9	58
4	0	0	7	9	3	19	4	,	1	1	16	3	3	32
5	9	1	30	34	439	504	5	i	0	1	29	32	436	498
TOTAL	14	14	80	54	448	612	for	AL	14	16	•0	54	448	612
NUMBER	OF 611	rs 5:	04	PER	CENTAG	E 0.8235	NUX	BER (	OF HI	TS 41	88	PER	CENTAG	E 0.7974
	LUND	CONT	INGEN	CY PR	OGNOS1	s		MU	LTIPL	.E 019	CRIM.	t man't	ANALY	<b>51</b> 5
		(	JF •ER1	/ED						(	DUSER	VES		
FORE- CAST	1	2	3	4	5	TOTAL	FOR CAS		ı	2	3	•	5	TOTAL
i	ı l	5	0	0	c	16	1		11	9	7	0	0	27
2	1	4	3	2	0	10	5		1	1	1	0	0	3
3	2	6	37	12	9	66	3		2	4	39	12	7	64
4	0	9	27	16	11	49	•		0	0	14	11	6	31
5	O	1	14	24	428	471	5		0	2	19	31	435	487
TOTAL	14	16	80	54	448	61?	tot	AL	14	16	80	54	448	612
NUPBFR	0E h[1	S 49	) 6	PEQ	CENTAG	E 0.8105	NUM	AER (1	F H]T	'S 49	)7	r; z	CENTAG	F 0.8121

### VERIFICATION OF 4 HOUR VISIRILITY FORECASTS MCGUIRE AFB. WRIGHTSTUMN. N.J. THE VERIFICATION CRITERION IS THE PERCENTAGE OF HITS

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			RSISTE ORSER:							isstal Inseri			
FORE- CAST	ı	2	3	4	5	TOTAL	FORF- CAST	1	2	3	4	3	TOTAL
1	ι	1	7	2	1	12	1	ı	1	ı	1	1	5
2	1	3	4	3	2	1 3	,	0	0	4	1	3	٠
3	c	٥	19	14	14	47	3	ì	2	10	5	9	34
4	1	0	13	11	23	48	4	ì	1	20	1.0	34	74
5	C	3	9	27	355	394	5	e	3	9	29	348	389
TOTAL	3	7	57	51	395	514	TOTAL	3	7	57	>!	395	514
NUMBER	OF HET	\$ 3	89	PFR	CENTAG	E 0.756d	WUMBER 13(	- нтт	S 31	15	PER	CENTAG	E 0.7490
CLIMAT	ונופוכ	AL E	(PECT)	ENCY (	of PER	SISEFNCE			(	K(HUP)	ING		
		C	JdSFR\	vec:					(	)#SE#1	r Ci		
FURL- CAST	1	2	3	4	5	TOTAL	FORE- CASE	ı	?	3	4	5	TOTAL
í	o	9	2	c	1	3	ı	ı	2	8	2	1	14
2	c	0	e	e	0	Ç	?	•	•5	þ	e	ı	1
3	1	2	11	6	6	26	3	1	2	14	5	6	2 n
4	3	0	3	1	7	11	•	n	3	3	•	7	12
5	2	5	36	50	381	414	<b>*5</b>	i	3	27	45	360	456
TUTAL	3	7	57	57	195	514	TOTAL	•	7	52	57	395	514
AUPBER	DF <b>+</b> 17	'S 3	<b>43</b>	PCR	CENTAG	E 0.1446	'arimised ali	F H[T	\$ 40	00	PEA	CFNFAG	F 0.1792
	LUND	CONT	(NSFA	ICY PI	IOGNOS!	ıs	All	L 1 1 P L	F 31	2C41#	IVAN	F A'VALY	·\$1\$
			04584	1750						UBSEA	ALD		
FURE- CAST	1	s	3	4	5	TOTAL	FI)RF- Cast	1	2	5	,	>	TOTAL
1	ı	1	7	2	ı	12	1	,	t	5	1	ı	10
2	9	3	ŋ	Ç	1	3	2	2	o	0	0	0	0
j	1	3	14	12	22	43	•	1	э	25	15	12	53
4	1	o	13	5	10	50	•	r	J	5	4	5	14
5	J	3	14	10	161	404	٠,	Ċ	6	17	37	377	417
TOTAL	3	7	52	57	345	514	TITAL	•	7	57	5?	345	514
NUMBER	1F 141	15	346	11	RCENTA	GE 6.7510	Assessed a	IF HI1	r <b>s</b>	06	PE	RCENTA	GE 7.1938

# 

\* Sheet

		PFR:	SISTE	wC E					ŞU:	1 23L¢	1 v E		
			SERY!						O	BSEKV	Eΰ		*
FORE- CASI	1	2	•	4	5	TOTAL	FORF - CAST	i	2	3	4	5	TOTAL
1	c	ι	3	3	5	12	1	o	1	7	ı	1	5
2	1	1	4	3	4	13	2	1	ı	4	0	3	9
3	1	:	12	12	21	4?	3	7	t	4	4	9	22
4	7	0	7	16	23	44	4	c	1	13	17	36	57
5	1	1	11	19	365	397	5	7	3	12	11	167	414
TOTAL	,	4	37	53	418	517	1C1AL	5	4	37	53	418	517
hupper (	OF +11	\$ 37	14	neni	CENTAGI	2.7421	Attentés	CF HIT	5 39	)3	PER	CENTAGE	0.7602
C: !YA!	ការ <u>១</u> ៤៥៥	AL F	KPFC1	FIICY	NF PFE	SISIFNCE			,	じまじいト	146		
CLIFA	323011		BBSFR						:	0esea	⊌F B		
FOPE- CAST	1	2	3	4	5	IOTAL	CAST CAST	1	ž	3	4	5	101A)_
1	э	1	ı	o	1	\$	1	•	1	0	>	5	5
,	c	0	6	ċ	G	e	2	¢	3	?	1	5	5
	2	2	4	5	4	22	3	1	t	4	,	9	25
•	c	0	e	ć	c	s	4	ę	э	5	1	1	7
5	3	ı	21	45	413	492	4	4	2	26	42	400	474
TOTAL	5	4	37	53	419	517	TOTAL	5	4	37	53	418	517
ħU#KER	3F HI	TS 4	.22	pt:	RL FUTA	GE 0.4157	<b>%</b> 11=H€€	' 'F # <b>!</b>	15 4	•25	÷ ្និង	RCFN14(	GF 0.7836
	LUNO				uevos I	s		<b>բ</b> (Մ 110)		SC#1#		I ANALY	\$15
			OHSER	₩tx.			+c RE-						
FORE- CAST	1	7	3	4	•	PATAL	C721	1	?	١	•	5	TATAL
1	r	1	S	2	3	-	1	ç	1	1	<b>r</b> ,	0	2
2	1	3	ð	ŧ	c	>	7	r	J	0	3	S	9
3	1	3	26	14	21	re	•	ı	2	,	٧	Ŀ	27
4	,	2	,	7	15	15	•	ŗ	3	1	ί	r	1
,	1	ŗ	13	24	127	411	5	4	ŧ	?6	44	412	487
1%13E	4,	4	32	53	414	517	TO FAS	>	٠	17	53	416	517
ZUMBEN	i je ki	115	<b>60</b> 6	νſ	4CF1.14	GE 1137	Sunne	a -16 C4)	115	471	٧٤	41 E 73 A	GE 1_4143

### VERTEICATION OF 3 ME 34 E-151MG FORECASTS ATLANTIC CITY, N. L. E-NPORT THE VERTEICATION CRITGHTON IN SM. METORE SAILL ECORE

		₽€:	E 5 } \$ 1 ·	e act					Ş	JB JEC	1646		
		,	0#5E#1	vE#						MSER:	red		•
FORE- CAST	1	7	3	4	5	fotal.	FERE+ Cast	ı	z	Ł	4	5	TOTAL
1	:	6	ì	0	3	14	t	8	2	3	o	٥	2
2	0	16	•	2	4	31	2	3	16	7	Š	6	34
٤	1	3	1 1	•	1	34	3	ō	12	13	5	•	36
4	1	7	5	17	11	31	4	£	1	ŧ	17	19	43
5	1	5	4	15	553	578	\$	2	2	6	14	540	344
TOTAL	5	55	35	16	574	183	TOTAL	\$	32	32	36	574	682
#£10 <b></b> 4€	SKILL	SCORI	ŧ		8	.54961	METORE	Szlit	SCOPI	•		٥	-58777
CL IMA:	i OFOC I		±PECT: DBSER		CF PER	SISFENCE				GRDUP DBSER			
FORE-			O. 14.	•••			4 S245-			J-J( -	***		
CAST	1	Ž	3	4	5	TOTAL	TRAS	1	2	3	•	5	1014
1	2	5	3	0	3	14	:	3		4	8	1	12
2	ε	12	\$	o	*	20	3	i	•	•	1	•	18
3	1	7	34	10	5	37	5	9	10	13	•	•	36
4	1	2	5	12	11	31	4	2	5	•	14	19	37
5	1	5	•	14	553	579	3	ı	5	3	17	550	574
- TOTAL	5	32	32	38	574	687	TOTAL	5	32	35	38	574	441
MEICKE	skill	SCOA	£		σ	• 59465	HE IDAE	Sette	SCOR	Ē		•	.557 <u>1+</u>
	LUAD	CONT	NGENC	Y PR	DS#85E	<b>.</b>	•	WLTIPL	.E D15	CSIMI	MANT	ANALY:	i 13
		4	MSERT	/ED					6	<b>e</b> SERY	€D		
							E 0045						

	TOWN	COAI	INGEN	TA SE	COSMOSE	2	•	ULI IP	TE DI	SC2 in	i wani	ANALY	515
			OBSER	AED						DOSER	YED		
FDRE- CAST	1	3	3	٠	5	FGTAL	FORE- CAST	1	2	3	4	5	1014
1	c	0	ņ	c	6	0	1	2	7	4	1	5	19
2	2	22	17	2	7	45	,	0	3.3	•	1	1	21
3	e	2	8	5	2	17	3	1	5	13	6	5	34
4	2	3	9	22	#5	171	•	1	3	•	14	12	34
5	1	5	3	9	48C	495	5	1	4	3	14	551	573
TUTAL	5	35	32	3&	574	•61	TOTAL	5	32	32	36	574	<b>68</b> 1
HEIDEE	SKILL	5004	E		0	.45674	HEIDEF	ettt.	SCOR	<b>E</b>		s	-40012

#### VERIFICATION OF 5 HOUR CEILING FORECASTS ATLANTIC GITY, N.J. AIRPORT THE VERIFICATION CRITERION IS THE HEIDKE SKILL SCORE

		PE	RSIST	ENC					S	DBJEC	TIVE		
			UBSER	AFD					ı	OHSER	VED		
FORE- CAST	1	5	3	4	5	TOTAL	FORE- CASI	1	2	3	4	5	TOTAL
1	o	1	2	2	9	14	1	0	ı	0	0	O	1
2	t	12	6	5	6	10	2	3	11	8	4	3	29
3	1	3	5	10	5	24	3	1	8	8	13	10	4C
4	ı	4	£	11	4	31	4	O	O	6	18	1.8	42
5	2	0	5	25	520	55?	5	ı	0	2	18	516	539
TOTAL	5	20	24	5 1	549	651	TOTAL	5	20	24	53	549	651
HE I CKF	SKILL	SCOR	E		0	. 50665	HEIDKF	SKILL	SCOR	E		o	.55890
CLIMAT	<b>ე</b> _0610	CAL F	XPECT!	ENC 1	OF PER	SESTENCE			(	GROUP	ING		
			UHSFR	VED						DHSER	VED		
EDRE~	ı	2	4	4	5	JA101	FORE- CAST	1	2	3	4	5	TOTAL
ı	c	1	ı	0	4	4	ı	0	ı	2	2	11	16
2	1	9	4	7	3	19	7	ı	10	7	7	4	29
3	ı	6	8	15	13	43	1	ı	5	5	1	7	25
4	1	4	6	11	9	31	4	ı	4	5	13	10	33
5	2	9	5	?5	520	552	٠,	2	0	5	24	517	5+8
JATOT	5	20	24	53	549	651	TOTAL	5	20	24	53	549	651
HEIGKE	SKILL	SCOR	E		o	. 50565	HEEDKE	SKILL	SCOR	ξ		0	.49930
	LUND	CONT	INGEN	Cr P9	ngnosi	s	<b>M</b> i	ULTIPI	LE DIS	SCRIM	LYART	ANALY	515
			DUSER	ven					(	OESER	VED		
FORE- CASI	i	2	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
ı	0	ņ	c	ა	9	q	i	0	1	2	2	11	16
7	1	13	н	7	15	*4	2	0	8	2	4	1	15
3	2	7	14	23	79	129	3	s	8	11	10	6	37
4	c	e	ı	4	37	42	4	1	1	5	14	17	3#
5	2	C	1	15	418	436	5	2	2	4	25	514	545
TOTAL	5	20	74	53	549	651	TOTAL	5	50	24	53	549	651
PF 10KF	SKILL	sçne	£		^	.31157	HETEKE	SKILL	SCOR	F		r	.51296

### VERIFICATION OF 7 HOUR CEILING FURECASTS ATLANTIC CITY, N.J. AIRFORT THE VERIFICATION CRITERION IS THE HEIDKE SKILL SCORE

			RSIST OBSER							UØJEC DBSER			
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
1.	ŋ	1	2	2	10	15	1	0	ı	o	ı	1	3
2	1	11	7	3	11	33	2	3	10	12	2	6	33
3	0	4	5	8	8	25	3	0	8	9	10	10	37
4	2	2	9	10	11	34	4	0	C	11	17	22	50
5	5	3	15	28	518	569	5	5	5	5	21	519	553
TOTAL	6	21	38	51	558	576	TOTAL	8	21	38	51	558	676
HEIDKE	SKILL	SCOR	E		c	. 39952	HEIDKE	SKILL	SCOR	E		a	.47576
CLIMAT	OLOG I	CAL E	XPECT	FNCY	OF PER	SISTENCE			(	GROUP	ING		
		1	OBSER	VED						OBSER	VED		
FORE~ CAST	ı	2	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	YOTAL
1	0	1	2	0	4	7	1	0	1	0	2	5	6
2	1	8	6	1	5	21	2	2	8	7	6	12	35
3	0	7	4	7	10	28	3	1	6	14	6	7	34
4	2	2	11	15	21	51	4	0	3	6	11	24	44
5	5	3	15	28	518	569	5	5	3	11	26	510	555
TOTAL	8	21	38	51	558	676	TOTAL	8	21	38	51	558	676
HE I DKE	SKILL	SCOR	E		c	.40170	HEIDKE	SKILL	SCOR	E		0	.42092
	1 61	. \$4C.	INGFN	CY PS	OGNOS I	s	ı	HULTIP	LE DI:	SCRIN	INANT	ANALY	<b>515</b>
			OBSER	VED					1	OBSER	VED		
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	1	ž	3	4	5	TOTAL
ı	0	2	3	2	55	62	1	0	0	¢	2	6	8
2	1	10	6	3	21	41	2	0	5	4	2	2	13
3	0	4	7	10	7	28	3	0	6	9	11	7	33
4	2	ç	18	22	76	123	4	3	9	14	15	30	71
5	5	0	4	14	399	422	5	5	i	11	21	513	551
FOTAL	8	51	38	51	558	676	FOTAL	8	21	38	51	558	676
HEIDKF	SKILL	SCOR	Ę		n	.27203	HEIDKE	SKILL	SCOR	Ε		o	.42129

### VERIFICATION OF A HOUR VISIBILITY FORFCASTS ATLANTIC CITY, N.J. AIRPORT THE VERIFICATION CRITERION IS THE HEIDRE .XILL SCORE

SUBJECTIVE

PERSISTENCE

416

- customate 20	JかJ E C	. 1 2 A E		
OBSFRVED	785 E P	938		
FORE-	3	4	5	OTAL
1 7 7 2 3 16 24 1 1 0	ı	4	. 0	Ł
2 0 8 6 3 9 26 2 5 6	•	0	7	22
3 1 3 4 3 6 17 3 4 3	9	7	19	41
4 2 1 0 2 8 13 4 ? 4	3	?	15	34
5 3 3 10 74 579 619 5 1 4	6	17	569	596
TOTAL 13 17 22 35 612 699 1014L 13 17	22	35	612	699
METOKE SKILL SCORE 0.35082 HETOKE SKILL SCORE	<del>.</del>			0.36543
CLIMATOLOGICAL EXPECTENCY OF PERTISTENCE G	ROVP.	ING		
OBSERVED C	HSER	VED		
FORE- CASE 1 2 1 4 5 TOTAL CASE 1 2	3	4	5	TOTAL
1 7 3 2 3 10 75	3	3	12	32
2 0 6 3 3 6 16 2 2 2	0	1	ı	2
3 1 4 3 3 8 19 3 1 8	8	4	t	27
4 1 0 4 1 4 10 4 1 2	ı	2	12	16
5 4 4 10 25 584 627 5 4 5	10	25	576	620
TOTAL 13 17 22 35 612 699 TOTAL 13 17	22	35	612	69 <b>9</b>
HEICKE SKILL SCORE 0.32709 HEIDAE SKILL SCORE				0.29953
LUND COMFINGENCY PROGNOSIS MULTIPLE DISC	CRIMI	EMANI	I ANAL'	7515
OUSERVEC O	HSERY	Vzð		
FORE- CAST 1 2 3 4 5 FOIGH CAST 1 2	3	4	5	TOTAL
1 6 6 7 6 36 4.	3	5	15	35
2 9 9 8 8 8 8 8 9	0	1	c	ı
3 3 8 5 5 12 31 3 7 6	10	5	15	38
4 5 1 6 14 138 162 4 0 3	o	ţ	8	12
5 1 7 4 13 446 463 5 3 4	9	23	516	613
• W. W. A				
TOTAL 13 17 22 35-612 699 TOTAL 13 17	22	35	612	699

### VERIFICATION OF SHIPM VISIBILITY FORECASTS ATLANTIC CITY, N.J. AIRPORT FOR VERIFICATION CHIERION IN THE DEFORE SKILL SCORE

		<b>•</b> •••	45151	E 10 E					S	UBJEC	X I 4 E		
			DHSFK	y, r						Onsea	veD		
FIRE- CAST	ι	٥	3	4	5	EI7 FAL	FORE- CAST	i	2	•	4	5	TOTAL
1	c	0	}	2	14	27	1	n	9	0	O	1	1
2	ì	1	1	2	13	76	2	3	j	?	3	2	13
3	1	0	3	?	10	16	3	1	5	ą	5	13	50
4	ń	ŋ	ı	2	10	13	4	1	0	4	5	12	22
5	4	4	7	14	557	586	5	t	7	4	9	581	5)7
TOTAL	6	?	<b>8</b> •	7.2	509	664	FOTAL	4	,	14	7.7	609	653
HETOKE	SKILL	SCBRI	τ		0	. 326H7	HFIDKF	SKILL	SCOR	ŧ		0	.52211
CL IMAI	)LOGIC	AL EX	CPEC 1	r ac y	OF PER	SISTENCE				,KO*IP	145		
		(	JASER	v£i,					1	UHSEA	AFD		
FORE- CAST	1	2	3	~	5	TRITAL	FORE- Cast	1	2	3	4	5	JATOT
1	c	1	1	2	19	23	ŧ	v	٥	3	2	17	22
2	1	2	3	?	16	18	2	C	)	4	2	9	15
3	,	0	6	3	¥	19	3	r	e	3	2	13	18
4	0	3	1	l	;	9	4	2	3	2	2	14	23
5	4	4	8	14	564	544	5	4	4	7	14	556	545
TOTAL	6	7	13	27	404	661	TOTAL	b	7	19	22	609	6÷3
HEIOKE	SKILL	SCORI	E		o	. 35126	HEIOKC	SKILL	SCORI	ŧ		0	. 30250
	LUND	CONE	INGEN	CY PR	tognesi:	s	AI	UL TIPL	.E D(1	SCREM.	[NANÎ	ANALY:	515
		(	OBSCR	AEti					٤	345ER 1	/FC		
FORF- CASI	1	2	ı	4	5	19145	FORE- CASI	ì	2	3	4	5	TOTAL
i	ı	ı	5	4	50	*1	t	ı	1	7	3	29	41
2	c	7	n	0	n	G	,	ε	3	3	į,	ı	ı
3	ı	2	5	2	4	14	3	a	2	4	4	16	28
4	>	1	3	4	29	37	4	o	o	i	4	4	14
5	Z	3	6	12	546	567	5	÷	4	1	11	552	579
•													

HEIDRE SKILL SCORE

0.32546

HETCKE SKILL SCORE 0.32945

### VERIFICATION OF 7 HOUR VISIRILITY FORECASTS ATLANTIC CITY, N.J. AIRPORT THE VERIFICATION CRITERION IS THE HEIDKE SKILL SCOKE

		0.51	LSISTE	<b>NCE</b>					Sı	IRJEC 1	1vE		
		(	anser:	/ED					C	BSER	LD.		
FORE- CAST	1	5	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
1	C	0	ı	٥	20	71	1	0	0	0	0	1	1
2	1	3	5	ı	15	25	2	2	2	1	0	7	12
3	2	ı	1	o	12	15	3	t	2	9	2	13	21
4	0	0	0	0	14	14	4	ı	3	1	2	15	55
5	7	3	12	13	546	581	5	6	0	8	10	571	595
TOTAL	10	7	19	14	607	657	TOTAL	10	7	19	14	607	657
HEICKE	SKILL	SCOR	E		0	.25672	HEIDKI	E SKILL	SCORI	ŧ		0	.44634
CLIMAT	010610	AL E	APEC I	FNCY	OF 9ER	SISTENCE			1	GROUP	146		
			OBSER	ven					1	DBSER	VED		
FORE- CAST	ı	2	3	4	5	TOTAL	FORE- CAST	i	2	3	4	5	TOTAL
i	c	1	1	c	e	3 0	1	0	0	2	2	15	19
2	C	1	1	1	4	7	2	1	2	2	0	15	20
3	3	ī	3	0	13	2 c	3	2	2	2	c	19	25
4	C	ı	ø	G	7	H	4	1	0	0	0	11	12
5	7	3	14	13	515	612	5	6	3	13	12	547	581
TOTAL	16	7	19	14	607	457	TOTAL	10	7	19	14	607	657
HETOKE	SKILL	SCOR	F		0	.33605	HEIDK	E SKILL	SCOR	E		0	. 26332
	LUND	CONT	INGEN	CY PR	:064051	\$		MULTIPL	.E 01	SCRIM	lnani	T ANALY	\$15
			OBSER	G3V						ORSER	VED		
FGRE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	t	2	3	4	5	TOTAL
1	Ł	2	5	1	31	40	i	1	₹	3	0	14	20
2	Ċ	0	0	0	С	e	2	c	0	٥	G	O	o
3	5	3	11	6	165	190	3	t	1	4	0	9	15
4	ŧ	ŧ	ì	1	85	32	4	0	2	4	3	29	38
5	3	i	7	હ	343	345	5	×	?	a	11	555	584
FOTAL	10	;	14	}4	607	657	ICTAL	10	1	19	14	607	657
HEICKE	SKILL	SCOR	ε		o	.13267	HE10*	ESKILL	SCIA	f		n	. 13321

### VERTFLCATION OF 2 HOUR CEILING FORECASTS MESTOVER AFB, CHICOPEE, MASS. THE VERIFICATION CRITERION IS THE HEIDKE SKILL SCORE

SUBJECTIVE

PERSISTENCE

		(	DOSER	VED					c	BSERV	ED		
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	1	,	3	4	5	TOTAL
ı	8	3	0	2	2	15	1	3	2	0	ı	ı	7
2	5	8	5	0	0	18	2	11	10	8	C	1	30
3	0	7	27	7	3	44	3	0	8	24	9	3	44
4	0	3	6	44	35	88	4	0	3	7	44	22	76
5	4	3	5	18	455	485	5	3	1	4	17	468	493
101AL	17	24	43	71	495	650	TOTAL	17	24	43	71	495	650
⊬E 10KE	SKILL	SCORE	Ē		0	.63644	HEIDKE	SKILL	SCORE	Ė		o	.65600
CLIMA	roungi	CAL E	XPEC 1	FNCY	OF PER	SISTENCE				G40NP	InG		
			0%5E#	VEO						OBSER	VED		
FORE~ CAST	1	2	3	•	5	TOTAL	FORE- CAST	ı	2	3	4	5	TOTAL
ı	9	3	0	2	2	16	ì	9	3	0	2	2	16
5	5	11	7	Ó	r	23	2	4	10	6	o	0	20
3	0	5	24,	4	3	38	3	1	10	28	8	3	50
4	0	5	6	50	25	86	4	0	t	6	42	32	81
5	3	c	4	15	465	497	5	3	0	3	19	458	463
TOTAL	1.7	24	43	7;	495	650	TOTAL	17	24	43	71	495	650
HEIDKE	SKILL	SC/JR	ŧ		Ć	0.69974	HEIDKE	SKILL	SCOR	£		C	0.65570
	EUNC	CONT	INGEN	iCY PF	lognos1	S		MULT I P	LE DI	SCRIM	INANI	ANALY	\$15
			OBSER	VFD					1	OUSER	VED		
FORE- CAST	1	3	3	4	5	TOTAL	FORE- CAST	i	2	3	•	5	TOTAL
1	0	0	າ	ů	c	¢	1	ic	3	0	2	2	17
2	13	11	5	2	2	31	>	4	15	9	0	0	26
3	r	7	21	7	3	44	3	6	4	24	6	2	36
4	c	3	6	44	35	83	4	'n	7	4	43	11	60
5	4	3	5	18	455	485	5	3	Ó	6	20	480	507
TOTAL	17	24	43	11	495	650	TOTAL	17	24	43	71	495	659
BEIGKÉ	skille	SCUR	ŗ		-	.61734	ייז זטאנ	< <b>K</b> 11.1	Sr na	£		,	7, 17764

### VERIFICATION OF 4 HOUR CEILING FORECASTS WESTOVER AFR. CHICOPEF, MASS. THE VERIFICATION CRITERION IS THE HEIDRE SKILL SLORE

SUBJECTIVE

OMSERVED

PERSISTENCE

GRSERVED

FORE- CAST	ı	5	3	4	5	TOTAL	FOR CAS		2	3	4	•	JATOL
ı	3	2	2	2	7	16	1		ı	o	o	2	4
2	ı	9	7	ı	2	25	7	,	6	4	4	3	50
3	1	5	24	b	10	44	1	2	10	21	17	3	48
4	1	4	9	36	23	79	4	. с	3	15	39	36	43
5	1	ì	9	71	449	447	4	1	1	11	24	453	490
TUTAL	7	21	51	19	497	655	101	AL 7	51	51	19	164	655
HEICKE	SKILL	SCOR	E		0	. 55457	HE I	PKF SKIL	L SCO	ı F		o	.54679
CLIMAT	OFOGI	CAL E	xrfC t	ENCY	OF PFR	SISTENCE				GRUUP	146		
		1	IBSER	YFC						nbsca	VFD		
FORE- CAST	1	?	3	4	5	TOTAL	F CR C A S		2	3	4	5	JATOT
1	3	0	c	2	e	5	1	3	3	3	5	9	21
2	1	2	c	2	c	',	,	1	7	6	2	o	16
3	1	12	31	12	12	6 -	3	1	5	50	4	н	42
4	1	4	9	36	29	1~	4	1	5	15	37	36	96
5	1	3	11	21	456	498	5	1	1	7	53	442	460
TOTAL	7	21	51	79	497	654	101	AL 7	21	51	19	497	355
HEICKE	SKILL	SCORE	•		0.	.56764	HFI	DKE SKIL	L SCAR	Ε		e	.52050
	LUND	CONT	INGEN	Сү РЯ	068851	s		WILLI	PLF DI	SCHIM	[NAN1	ANALY	\$13
		l	D8SER	4ED						ORSER	v£D		
FURF- CAST	1	2	\$	4	5	TOTAL	FOR CAS		?	}	4	5	TOTAL
1	C	0	0	c	e	С	1	4	2	3	2	4	15
2	4	11	9	b	7	41	2	1	3	2	1	1	8
3	3	5	24	۴	10	48	1	1	11	30	12	4	58
4	1	5	12	40	67	145	4	^	4	8	38	25	75
5	1	9	6	23	391	421	5		1	B	26	463	449
TOTAL	1	21	<b>&gt;</b> 1	79	497	655	101	AL 7	21	51	79	497	655
HETOKE	skill	SCORE	•		e.	. 43555	HFI	OKE SKIL	L 5^^4	ι		С	.602%6

### VFRIFICATION OF 6 HOUR CEILING FORECASTS #ESTOVER AFH, CHICGMEE, MASS. THE VFRIFICATION CRITERION IS THE HETOKE SKILL SCORE

SUBJECTIVE

PERSISTENCE

FFTCKE S L SCORE

			UHSE	ldeu						เวชระห	vE0		
FORE- CASI	ì	2	3	4	5	TUTAL	FORE- CAST	ı	2	3	4	5	IDTAL
1	e	1	2	•	9	16	1	1	э	ı	c	1	3
2	2	2	7	e.	6	25	2	2	6	10	i	i	20
3	2	5	19	15	6	47	3	C	5	20	11	3	39
4	1	7	16	31	32	87	4	1	3	13	51	39	107
5	ი	3	5	46	440	494	5	1	4	5	41	449	500
TOTAL	5	18	49	104	493	669	TUTAL	ť	1 5	49	104	493	669
HEICKE	SKILL	SCOR	ė		o	.42729	HE10KF 5		SCCR	E		0	.52922
CLIMAI	orae t	CAL E	XPFC	FNCY	OF PER	SISTENCE				GROW	PING		
			ORSEF	RVED						OBSER	RVED		
FORE- CAST	1	ž	3	4	5	TOTAL	FORE— Cast	1	2	3	4	5	TOTAL
i	0	1	•	2	1	4	1	0	ı	3	1	3	8
2	2	G	?	1	0	5	2	2	2	7	4	9	24
3	5	7	74	2.2	12	67	3	U	5	14	13	6	38
4	ι	7	15	31	32	57	4	?	6	18	~1	35	102
5	9	3	b	44	448	505	5	1	4	7	45	440	497
TOTAL	5	18	49	104	493	669	TOTAL	5	18	49	104	493	669
HEICKE	SKILL	SCOR	£		ď	-44867	HETOKE S	SKILL	SCOR	ξ		o	.43530
	LUND				120450	s	мп	IF L L 61				ANALY	515
FURL-		'	DuSER	ALD			5005		(	)BS EK	VED		
CASI	t	?	3	4	5	TOTAL	FORE- CAST	ŧ	2	3	4	5	TOTAL
1	9	c	e	-	r	e	1	ว	1	2	3	4	10
2	>	1	4	5	4	14	,	2	1	3	4	4	14
3	3	9	35	35	16	95	3	2	1	27	13	5	60
4	r	5	٠,	42	102	154	4	ι	5	13	40	26	85
5	•	3	4	"	3/1	475	5	٥	4	4	38	454	500
14101	•	13	43	174	493	669	TOTAL	5	14	4.)	104	493	600

HEIDER SKILL IN HE

0.51471

0.38046

### VERIFICATION OF 2 HOUR VISIBILITY FORECASTS NESTOVER AFB, CHICOPEE, MASS. THE VERIFICATION CRITERION IS THE HEIDKE SKILL SCORE

SUBJECTIVE

PERSISTENCE

- E

		75	w.>12:	ENCE					3	ONJEC	IIAF		
			OBSER	VED						OBSER	VED		
FORE- CAST	1	2	3	4	5	TOTAL	FORE- GAST	1	2	3	4	5	TOTAL
ı	12	2	2	2	o	18	1	4	2	1	C	0	7
ž	2	5	7	1	0	15	2	10	3	9	o	o	22
3	н	4	20	5	4	41	3	10	9	32	12	8	71
4	1	1	14	15	14	45	4	0	0	7	24	26	57
5	1	2	11	27	527	563	5	0	0	5	14	506	525
TOTAL	24	14	54	50	540	68?	TOTAL	24	14	54	50	540	682
HEIDKE	SKILL	SCOR	ε		C	O• 50676	HFIDKF	SKILL	SCOR	E			0.54223
CL EMAT	OLOG I	IAL E	rect	ENCY	OF PFR	SISICYCE			•	GROUP	146		
		(	DRSER	VED					(	OBSER	VED		
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	1	2	3	•	5	TOTAL
1	5	1	2	1	c	9	1	16	÷	4	2	0	26
2	8	4	6	1	0	19	2	2	2	2	C	0	6
3	9	6	21	6	4	46	3	5	9	30	17	8	68
4	ı	1	14	15	14	45	4	1	ð	11	9	12	33
5	1	2	11	27	522	563	5	0	o	7	55	520	549
TOTAL	24	14	54	50	540	682	TOTAL	24	14	54	50	540	682
HEICKE	SKILL	SCOR	E		O	.47441	HEIOKE	SKILL	SCOR	E		(	0.54251
	LUND	CONTI	NGFNO	Y PPI	NGNOS1:	<b>.</b>	м	ULTIPL	F DIS	CRINI	TANT	ANALY	<b>S1S</b>
			BSERV							8SERV			
FORE-	ı	2	3	4	5	TOTAL	FOPE- CAST	1	2	3	4	5	TOTAL
I	c	0	e	٥	c	6	ı	18	4	7	3	0	32
2	24	14	5 }	45	141	280	2	3	4	3	0	0	10
3	o	0	c	U	c	c	3	3	5	31	4	2	45
4	c	0	o	c	c	C	4	ń	ì	9	24	15	49
>	c	0	1	2	399	407	5	c	U	4	19	523	546
TOTAL	24	14	54	50	540	697	FOTAL	24	14	54	50	540	682
HETCKE	SKILL	SCORF			0	.23284	HFIDKE	SKILL	+ر√۵ړ			e	.64662

### VERIFICATION OF + HOUR VISIBILITY FURECASTS MESTOVER AFR. CHICOPEE, MASS. THE VERIFICATION CRITERION IS THE HEIDKE SKILL SCOPE

PERSISTENCE

SUBJECTIVE

r T

			121211							18750			
		(	DHSFR	(FD					(	JHSFRY	750		
FORE~ CAST	ι	2	3	4	5	TOTAL	FORE- CAC:	1	2	3	4	•	YOYAL
1	5	?	10	?	4	23	t	4	ı	ı	ı	c	5
2	1	?	5	Ŀ	4	12	2	1	1	2	1	4	9
3 :	2	6	22	7	9	46	3	4	7	23	7	11	52
4	2	2	12	12	16	46	4	3	3	23	:5	26	70
5	2	1	13	55	508	545	5	1	1	12	50	502	5 36
TOTAL	12	13	61	43	543	672	TOTAL	12	13	61	-3	543	672
HETCKE	SKILL	SCOR	E		o	•46366	HEIOKE	SKILL	SCOR	E		C	). 36615
CL IPAI	UF001	CAL E	XPEC 1	ENCY	OF PEX	SISTENCE				GROUP	ING		
			OASER	Af D						OBSER	vE9		
FORE- CAST	1	-	3	4	5	TOTAL	FORE- CAST	1	2	3	•	5	TOTAL
1	5	1	2	0	1	9	1	5	4	12	1	9	31
2	c	5	1	0	Z	5	2	2	0	ë	1	ı	12
3	3	5	23	¢	7	44	3	3	4	16	7	18	48
4	2	4	73	15	25	69	4	0	3	10	10	19	42
5	2	ì	12	22	508	545	5	2	2	15	24	496	539
TOTAL	12	13	61	43	543	67?	FOTAL	12	13	61	3	543	672
HEICKE	SKILL	SCOR	F		o	.44812	HEIDKE	SKILL	SCOR	E		o	.43988
	LUND	CUNT	INGEN	CY PS	OGNOSI	s	,	<b>(</b> ULT12)	LE 01'	SCHIM	[YAN]	ANALY	\$15
			CASER	V€D					1	NBSER	YED		
FURE- CAST	1	2	3	4	5	TOTAL	FIRE- Cast	1	2	3	4	5	TOTAL
ι	c	o	ō	o	0	c	1	4	3	10	?	3	22
2	5	4	15	2	8	35	,	0	1	0	0	8	1
3	2	6	2 ż	1	9	45	3	7	7	36	14	21	AS
4	3	3	21	32	1 35	194	4	Ł	1	5	10	50	37
5	1	0	3	2	391	397	\$	Ç	1	10	17	499	527
TOTAL	12	13	61	43	543	672	TOTAL	12	13	61	43	543	612
HEICKE	SKILL	SCOR	E		ų	. 32641	HETURE	SKILI	scra			ď	1.65307

### VERIFICATION OF 3 MOUN VISIBILITY FURECASTS MESTOVER AFB, CHICOPEE, MASS. THE VERIFICATION CRITERION IS THE METONE SKILL SCORE

			KS1ST						\$	JBJEC	TIVE		
			OBSER	VEP						OBSER	VE D		
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CASI	ı	2	3	4	5	TOTAL
1	2	2	2	3	14	23	1	1	1	1	o	U	3
2	ŧ	0	3	2	Ś	12	•	0	1	7	2	4	14
3	3	3	14	9	13	4?	3	3	3	11	16	4	31
4	2	4	7	12	17	47	4	4	5	7	13	23	52
5	1	2	14	31	472	520	5	1	ì	14	32	491	539
TOTAL	3	11	40	57	522	639	tutal	Ų	11	40	57	522	639
HEICKE	SKILL	SCOA	ŧŧ		0	34121	HEIDK	ESMILL	SCCR	£		c	37730
CLIPAT	:0L0G1	CAL 6	EXPECT	ENCY	OF PF1	ISTSTENCE				GROUP	ING		
			OSSER	SAEL						Deser	AED		
FORE~ CAST	1	2	3	4	•	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
i	2	2	2	2	2	10	1	2	2	7	2	8	21
ž	1	0	1	O	3	5	2	1	0	0	3	10	14
s	4	?	13	11	7	37	3	2	4	13	14	25	58
4	ï	5	10	13	38	67	4	2	3	5	9	37	56
5	1	2	14	31	472	520	5	2	2	15	56	442	490
TOTAL	9	11	40	57	522	637	TOTAL	9	11	40	57	522	639
HEICKE	SKILL	SCOR	ŧ		o	33725	HEIDK	E SKILL	SCCR	E		c	25765
	LUND	CONT	ingen	CY PT	OGNOS1	s		40L11P1	LE 01:	PIROS	IVANT	ANALY	\$15
		1	OASFR	vED					•	DASER:	VEO		
FORE- CAST	ı	5	,	4	5	JATOI	FORE- Cast	ı	5	,	4	5	TOTAL
•	٥	9	0	o	0	9	1	2	2	2	2	11	19
2	2	0	7	•	8	15	5	1	3	2	G	7	10
3	4	9	20	19	42	74	3	5	4	20	14	26	64
4	3	5	16	31	184	236	4	1	3	4,	14	32	55
5	ø	¢	,	4	58H	244	5	ō	2	10	21	446	485
JATOT	3	11	47	57	527	417	JVAVI	9	11	40	5.7	522	619

HETORY SKILL SC OF

0.11014

0.20(37

HETOKE SKILL SCORE

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### VERIFICATION OF 3 HOUR CEILING FURECASTS WASHINGTON NATIONAL AIRPORT THE VERIFICATION CRITERION IS THE HEIDKE SKILL SCORE

		PE	SIST	ENCE					Su	133L81	IVE		
		(	BSER	/ED					t	PSER	ED.		
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	1	į	3	4	5	TOTAL
1	1	٥	0	٥	1	2	1	0	۵	0	e	o	0
2	G	1	3	1	7	7	2	o	0	3	0	2	5
3	0	0	10	2	0	12	3	Ů	ı	12	9	3	25
4	0	0	6	13	9	28	4	٥	0	4	13	16	33
5	1	ı	3	16	471	492	5	2	1	3	10	462	478
TOTAL	?	2	22	52	463	541	TOTAL	2	5	22	32	453	541
HEICKE	SKILL	18032	Ē		0.	.61532	MEIDKE S	×ILL	SCORI	ŧ		o.	.57810
CLIPAT	010610	iàl Ei	KPECT	ENCY	OF PER	SISTENCE				GROUP :	IYG		
		(	DBSER	VED						DPSEK	vED		
FORE- CAST	1	2	3	•	5	10745	FGRE- CAST	1	,	3	4	5	TOTAL
1	c	G	٥	G	0	0	1	ì	0	1	c	2	4
2	1	0	3	c	1	5	?	0	i	3	1	C	5
3	c	1	4	1	2	8	3	9	0	3	2	3	14
-	·	•										6	23
4	3	9	12	15	9	36	4	0	0	6	11	•	
_		-	12	15 16	9 471	36 492	5	0 1	9	3	18	472	495
4	3	9						_			18		
<b>4</b> <b>5</b>	9 1 2	9 1 2	3 22	16	471 483	492	5	1 2	1 2	3 22	18	472 463	495

	LUND	CONT	INGEN	[ Y D2	ņswas	15	#K/	LTIPL	E GI	eca In	INANT	ANALY	515
		;	CBSER	VFO					1	385ER	VED		
FORF- C4ST	1	2	3	4	\$	TOTAL	FORE— Cast	ı	7	3	4	5	TOTAL
1	6	o	0	υ	0	0	1	0	c	0	0	0	o
7	1	1	3	1	3	9	2	1	0	1	1	1	•
3	9	o	10	2	0	12	3	c	2	12	3	3	50
4	٥	1	5	>2	75	106	4	G	3	7	12	7	26
5	1	0	1	7	405	414	5	1	э	2	16	472	491
14131	2	2	27	37	483	541	TOTAL	2	2	35	32	483	541
HEICKE	s <ill< td=""><td>SCORI</td><td>ŧ</td><td></td><td></td><td>0.42052</td><td>MEIDKE S</td><td>KILL</td><td>SCOR</td><td><u> </u></td><td></td><td>9</td><td>. 61753</td></ill<>	SCORI	ŧ			0.42052	MEIDKE S	KILL	SCOR	<u> </u>		9	. 61753

### VERIFICATION OF 5 MODE CFILING FORFCASTS WASHINGTON NATIONAL AIMPORT THE VERIFICATION CRITERION IS THE METICKE SPILE SCORE

\*

		5 F G	SIST	40 8					Şt	р 1 - ЭЦ 41	140		
		1	185EPV	FU					4	ZSFRV	۶.,		
FPPF- CAST	1	2	3	4	5	TOTAL	FORE ~ CAST	ì	,	3	٠,	5	1 1144
ţ	,	٥	el	c	2	>	1	4	9	•	ζ.	t,	2
2	e	1	3	2	1	1	,	3	J	3	i	0	٠,
3	e	0	5	6	2	13	3	0	ı	5	7	•	1 7
4	3	1	•,	10	10	21	4	1)	ı	ı	l I	21	39
5	r	3	4	14	474	495	\$3	ſ	5	1	12	465	431
TEITAL	1)	5	1×	٠,	489	544	TOTAL	`	,	14	3.1	489	544
he ioke	SKILL	SCHRE	<del>,</del>		0	.54017	PE TOKE	SKILL	\$0098	Ŧ		0.	.53216
CLIFAT	nt no to	CAL F	xPECT!	ENCL	በF ቀይዊ	SISTENCE			(	SPOUP	NG		
		(	OBSFRI	AED					(	IPSER	vŁŪ		
F08(- Ca+f	ì	2	3	4	5	TOTAL	FCRE- Cast	ì	2	5	4	5	TOTAL
i	٥	ò	0	υ	o	9	1	o	0	e	L	0	0
2	c	9	1	ı	ı	3	2,	r	,	^	*	1	2
3	0	1	4	2	?	q	3	6	ì	11	11	7	30
4	` c	1	•	15	11	36	4	0	1	•	7	14	26
5	>	3	4	14	415	496	5	J	3	3	13	467	486
TOTAL	r	5	18	32	487	544	TOTAL	Ü	5	18	37	489	544
HEICKE	SKILI	SCOR!	r		c	. 5695 }	મંદ 1 ઇપ્તર	SKIFL	₹C+)*	r		0	.52673
	פצי ו	CONT	IN JENI	CY 24	123866	ς.	14	ひにちしゃし	.e oi	°541*	iyanı	ANALY	515
		,	De SPR	16.3					:	MSFR	45 >		
FCFF- CASI	1	?	ì	4	5	tital	ECHF- CAST	1	2	ì	4	5	TOTAL
ì		٥	÷		č		i	n	U	ţ	3	v	)
		I	1	ć	3	•	?		,	٥	•	7	2
;			,	ŧ	•	3.5	ţ	ť	ŧ	3	11	2	23
4			,	1 /	<i>?</i>	1	4		,	•	•	12	. ;
5		•	!		400	417	· ·		,	3	17	473	490
10 mg	•		11	ł	44 ,	1.44	1 545		,	13	3,	489	5*4
<b>!</b> <	· · · t	,			;	* 552 <sup>7</sup>	11° \$ - \$	٤.					5 15 60 3

# VERIFICATION OF 7 HEM CEILING FORECASES BASHINGTON NOTIC SAL AIMPORT THE VERIFICATION CRITERION IS THE HEIDEL SKILL SCORE

		hed	SISTE	40 E					SU	nJEG1	l ≠F		
		n	ASERY	<b>/</b> £3					1)	BSF#	H D		
FORE- CAST	1	2	,	4	,	TOTAL	FORE+ EAST	1	2	5	4	5	fOTAL
i	0	0	า	e	3	1	ł	9	9	0	e	0	o
2	0	ı	,	i	7	11	2	0	7	3	1	2	8
3	c	3	4	12	ę.	?5	3	0	3	v	10	1	26
4	^	2	6	10	17	35	4	0	2	?	15	19	+3
5	t	2	9	22	573	607	5	1	t	5	19	578	60•
TOTAL	ı	4	21	45	605	681	TOTAL	i	8	51	45	606	681
HFTOKE :	SKIFL	SCORE	•		a.	. 40855	HEIDKE	SXILL	SCORE	:		0.	. 49751
CL IMAT	oroetc	CAL E	APECT:	INCY	OF PER	SISIENCE			(	GROUP	ING		
		(	UBSER	VED					(	Dasea	VEU		
FORE- CAST	ı	2	3	4	5	TISTAL	FORE- Cast	1	5	3	4	5	TOTA
1	c	0	0	0	0	0	1	0	0	c	0	ć	•
2	0	0	ı	Q	2	3	2	0	0	C	0	2	2
3	0	3	4		9	24	3	0	4	7	9	10	30
4	0	3	7	15	21	45	4	0	i	7	16	21	45
5	1	2	3	22	574	608	•	ı	3	7	20	567	598
TOTAL	ı	8	21	45	604	681	TOTAL	1	8	21	45	404	451
relorf.	SKILL	SCUR	E		o	<b>.</b> 43490	HFIDRE	SKILL	SCOR	E		σ	.44535
	LUND	CONT	INGEN	CY PE	ngwas I	s	н	!!L <b>T</b> \$# <b>L</b>	€ 01	SCRIM	[NAN]	ANALY	<b>\$</b> ! \$
		1	OBSER	VED					,	OASER	VED		
FORE- CAST	1	,	3	4	,	101AL	FORE~ CASI	1	2	3	4	5	TOTAL
1	e	0	c	0	c	o	ı	0	0	0	0	0	n
2	0	S	٥	0	4	4	,	o	0	0	1	3	4
3	ŋ	4	Ģ	14	3	30	3	0	4	5	11	11	<b>::</b>
4	c	4	9	23	101	136	4	c	;	ii	17	17	4\$
5	i	ı	3	ť	493	511	5	i	ì	5	16	575	598
34101	ì	H	21	45	606	651	JATOT	ŧ	8	21	45	606	461
HETOKE	SKILL	sonk	τ		٥	. 34.742	HFTOKE	SKILC	scak	ſ		0	.4*112

### VERTETCATION OF 3 HOUR VISIALLITY FORECASTS WASHINGTON NATIONAL AIPPORT THE VERTETCATION CRITERION IS THE HEIOKE SKILL SCORE

		£6¢	85151	HCE					Št	) 3 J C C	FEVE		
		(	765FR	1EU					:	JBSEK	/£0		
FORE- CAST	ı	2	3	4	5	PATAL	FORF- CAST	ı	2	3	4	4	TOTAL
ì	ì	1	1	2	1	6	ì	c	. 0	0	o	o	0
2	1	Ö	1	c	G	2	2	O	0	2	G	2	4
3	0	1	1	2	3	7	3	2	1	2	4	4	13
4	o	٥	3	5	13	51	4	ì	1	2	Ü	10	20
5	1	Э	7	18	547	573	5	0	0	7	17	548	572
TOTAL	3	2	13	27	564	609	TOTAL	3	2	13	15	564	609
HETDKE :	SKILL	SCARE			0	.20104	H&IOXE (	SKILL	SCORE	•		0	. 23995
CLIMAT	otne to	CAL E	XPEC T	ENCY	OF PER	STSTENCE				GRQUP	ING		
			OBSER	νEυ						OHSER	VED		
FORE- CAST	ı	2	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
i	ı	1	:	2	ı	Ś	1	0	0	1	3	4	а
2	ŗ	0	C	υ	c	÷.	2	0	0	0	1	1	5
3	ů	r	1	2	ì	4	3	2	2	4	3	5	16
4	ì	1	4	5	15	26	4	0	0	,	1	11	13
5	ı	0	7	18	547	573	5	1	0	7	19	543	570
TOTAL	3	2	13	27	564	609	TOTAL	3	2	13	27	564	609
HEIDKE	SKILL	scar	F		Ċ	0.19985	HEIDKE	SKILL	SCOR	E		d	14993
	LUNG	Cayt:	INGEN	CY PA	OGNUSI	\$	м	JLTIPL	£ 015	SCRIM	INANT	ANALY	\$15
		6	585£8	40%					(	785 ER	/ED		
CAST	•	,	3	4	3	19146	FORE-	ì	2	3	4	5	TOTAL
ŧ	7	>	>	3	4	16	1	ı	0	ı	G	0	2
é	c	6	ř,	Ł.	5	•	>	ı	l	2	?	5	11
\$	^		:	ì	ņ	τ	3	0	1	0	1	4	6
4	Ó	Ģ	,	3	19	l o	4	G	G	3	6	10	19
ל	;	*	٠	20	550	573	5	ı	2	7	18	545	571
10375	•	3	1 1	2.0	101	68)	TOTAL	3	2	13	21	564	609
rfibre:	SKELL	عن ۱۲	r		•	. (6)01	HETOKE	S×Itt	SECR	L		٠	.2347)

### VERIFICATION OF 5 HOUR VISIBILITY FORECASTS WASHINGTON NATIONAL AIRPURT THE VERIFICATION CRITERION IS THE HEIDKE SKILL SCORE

			R\$15T							Jalec			
FURE-		•	065ER	VE1)			FORE-		ì	DBSER	VED		
CASI	1	?	j	4	5	TOTAL	CAST	1	2	3	4	>	TOTAL
ı	0	1	7	o	4	7	ı	0	0	0	0	0	8
2	c	0	e	0	3	3	2	1	0	c	Э	4	5
3	0	٥	1	1	t	9	3	0	ĭ	1	3	11	16
4	i	9	?	7	12	22	4	0	0	2	3	9	14
5	2	2	6	17	628	655	5	7	2	8	14	630	661
TOTAL	3	,	11	25	654	696	TOTAL	3	3	11	25	654	696
HEICKE	SKILI.	SCOR	E		o	-23630	HEIDKE	SKILL	scon	E		Q	.15164
CLIMATO	ntoetc	AL E	XPECT	ENCY	OF PER	SISTENCE			ŧ	GROUP	ING		
			OPSER	VED					•	OHSER	VED		
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CASE	ı	2	3	4	5	TOTAL
1	0	0	2	0	2	4	1	٥	3	1	2	7	10
5	G	ō	0	Q	0	o	ž	0	i	1	0	5	7
3	c	0	0	1	5	6	3	0	0	2	5	1 d	25
4	1	į	3	5	11	21	•	0	0	0	1	27	28
5	2	?	6	19	634	665	5	3	S	7	17	597	626
FOTAL	3	3	11	25	654	696	FOTAL	3	3	11	25	554	696
+E10KE	SKILL	SCOR	F		o	. 20594	HEIDKE	SKILL	SCOR	E		o	•09 <del>6</del> 40
	LUND	CCNF	1 NG FRI	CY PT	nenasi	s	191	ULTIFL	E 0[5	SCR14	IVANT	ANAL V	515
			OBSER	4ED					ŧ	)8SER	VED.		
FORF- CAST	ı	2	3	4	5	TUTAL	FORE- CAST	1	?	3	4	*	TOTAL
ı	G	1	ı	C	3	3	i	o	1	σ	c	ì	2
2	C	Q.	O	e	C	c	2	0	0	ì	0	ŧ	1
3	c	n	5	5	56	36	3	i	0	?	2	6	11
4	1	C	2	Ħ	34	43	4	0	ı	3	7	28	19
5	S	2	3	12	503	810	5	2	1	3	51	613	537
TUTAL	3	3	11	>\$	654	674	FOTAL	3	3	11	25	554	676
HE FOKE	SKILL	SCORI	Ē		۵	.23160	HF TÜKE	SKILL	SCERF	•		13	. 220- 1

### VERIFICATION OF 7 HOUR VISIBILITY FORECASTS WASHINGTON HATTONAL ATRPORT THE VERIFICATION CRITERION IS THE HEIDES SKILL SCORE

SUBJECTIVE

PERSISTENCE

									-				
			06368	AEB						OBSER	AUB		
FURE- CAST	ı	2	3	4	5	TOTAL	FGRE- CAST	ι	2	,	4	4	ATOT
1	c	9	ŧ	0	6	1	ŧ	0	?	o	٠.	9	0
2	ņ	G	i	0	2	3	2	ì	0	0		3	4
3	•	1	į	1	6	3	3	o	0	2	4	16	22
4	c	0	4	4	15	23	4	0	0	1	1	Ą	10
5	3	1	5	15	647	671	5	2	,	9	15	643	611
TOTAL	3	2	12	20	676	713	foral.	3	?	12	20	416	713
HEICKE	SKILL	scon	ł <del>f</del>		C	.74714	HEIDKF	SKILL	SCOR	F		0	.18816
CLIPAL	31.001C	AL E	አ <b></b> ዮ೯ር የ	FNCY	OF PER	SISTENCE			(	GROUP	146		
			OBSCK	vFD					1	กธระห	VEO		
FORE- CAST	l	2	3	4	5	FOTAL	FORE~ CAST	ı	?	3	4	5	TOTAL
1	0	0	i	o	3	4	1	0	o	ı	o	3	4
2	c	e	G	c	ì	1	?	G	ð	2	(	5	7
3	3	1	3	3	4	3	3	1	1	5	6	28	39
4	0	8	3	1	A	12	4	c	ì	1	2	37	41
5	3	Į	7	17	659	687	5	3	1	3	12	603	622
TOTAL	3	?	12	50	676	713	TOTAL	3	5	12	20	676	713
HEIOKF 9	SKIL :	scnas	Ē		o.	.27134	HETOKE S	SKILL	SCORE	:		0.	17985
	LUNG (	COAT	lagen	[Y (1.4	<del>บราคร</del> า	s	Pr <u>i</u>	JLT EPL	E 015	5C9 [ w	INANT	ANALYS	515
		•	CHSER	∤£:					(	IBSER	vēü		
FURE- CAST	1	2	3	4	4	10141	CASI	ı	2	3	4	5	TCTAL
1	Ç	ē	¢	٠,	e	ę.	1	:	1	2	ί	5	я
2	``	7	٠	4	;	ſ	,	r	ί	0	ţ	4	4
•	٤	•	•	•	1	1	•	n	ü	<i>(</i> ,	1	2	:
4	,	ř.	* 7		P	pt.	4	f	3	6	5	16	25
٩	•	•	1;	٧,	66.7	70%	e	3	ı	4,	16	647	673
\$4.1 45	3	,	13	٠,	SIL	71 1	10146	•	,	12	2(	616	713
recaust i	741	√1 R;	ζ			. 78 - 27	+4f ti≪+	* [11	٠, ٥,	i			, •

# VERIFICATION OF 3 HOUR CELLING ECRECASTS IDLEMED INTERNATIONAL ATRREST THE VERIFICATION CRITERION IS THE HEIDRE SKILL SCORE

		_	SISTE								AJECT HSFPV			
FGRE- EAST	1	2	:b\$£RV 3	(1) 4	5	TOTAL		FORE- CAST	1	2	3	4	5	TOTAL
ì	9	9	2	1	5	26		1	2	o	ì	c	1	4
2	5	24	6	4	4	43		>	8	30	q	2	3	58
3	.,	13	28	7	10	58		\$	2	14	24	15	8	63
4	С	3	11	33	37	84		4	0	5	16	39	35	95
5	ง	6	10	32	1024	1072		5	2	6	7	21	1027	1063
TOTAL	14	55	57	77	1060	1283		TOTAL	14	55	57	77	1080	1283
HETOKÉ	SKILL	SCOR	F		(	0.57681		HEIDKE	SKILL	SCARE	:		;	0.59331
CLIMAT	0L0610	CAL E	KPFCTI	ENCY	OF PE	ISISTENCE				c	ROUP	ING		
			ORSEKI							t	ASER	VED		
FURE- CAST	1	2	5	4	5	INTAL		FORE- CAST	1	2	3	4	5	TOTAL
1	5	3	2	3	2	12		1	1	4	0	ı	0	6
2	9	30	6	,	7	57		2	12	25	10	4	6	57
3	9	13	28	1	10	5.8		3	^	16	23	15	11	74
4	c	3	11	33	37	84		4	c	4	10	26	42	82
5	•	6	10	32	1024	1072		5	1	6	8	28	1021	1064
1011	14	55	51	71	1686	1283		FOTAL	14	55	57	17	1080	1283
HETCKE	SKILL	SCOR	ŀf			<b>0.</b> 58166		нетоке	SKILL	SCCR	E			0.54249
	LUND				toone's	15		ju	WLT1PI		SCRIM DBSFR		T ANAL	4212
FORE-	1	,	NUSEF 3	4	5	TOTAL		F1'9E-	1	2	3	4	5	TOTAL
ı	c	r	,	Ć	ŗ	ē		1	5	3	2	e	4	19
,	14	31	А	,	7	6+		,	4	23	A	5	4	49
3	٠-	12	,	,		4 4		1	0	15	22	9	7	53
4	^	,	71	45	1=3	260		4	r	?	15	31	34	B2
,		5	•	7,	+19	204		4	<	1	10	32	1031	1080
TOTAL	14	55	51		1 80	1217		TOTAL	14	55	57	11	1040	1283
nt lokt	,- tı	SCO	,			0.4114	. 1	af Inki	5010	ر پ <sub>و</sub> ر	r			£ . 764 78

# VERIFICATION OF 5 HOUR CELLING FORECASTS IDLEWILD INTERNATIONAL AIRPORT THE VERIFICATION CRITERION IS THE HEIDRE SKILL SCORE

		PER	RS151	FNCE					Si	)8JEC	3V11		
		(	DBSER	VED					6	OHSEK	4F()		
FURE- CAST	1	2	3	4	5	INTAL	FORE- Cast	1	,	3	4	5	TOTAL
1	6	1	3	o	11	27	1	э	2	0	o	0	2
2	5	27	11	6	12	61	2	9	27	10	7	16	64
3	1	12	27	12	27	74	3	5	18	33	16	17	89
4	1	6	11	41	54	113	4	0	6	15	45	45	111
5	10	8	18	52	1088	1176	5	7	12	12	43	1107	1185
TOTAL	23	60	70	111	1187	1451	TOTAL	23	60	70	111	1167	1451
HE!CKE	SKILL	SCOR	τ		(	3.44072	HEIDKE	SKILL	SCOR	E			0.47453
CL 14A1	roLOG1	CAL E	(PECT	ENCY	OF PE	<b>ESISTENCE</b>	-			GROUP	146		
			OBSER	VFΩ					1	OUSER	VED		
FORE- CASI	1	2	3	4	5	FOTAL	FORE- CAST	1	5	3	4	5	TOTAL
1	2	3	G	0	1	6	1	7	ь	4	o	9	28
2	9	25	8	4	17	63	2	4	20	5	5	11	45
3	1	18	31	12	20	82	3	1	10	29	12	17	69.
4	1	6	13	43	61	124	4	0	13	15	45	67	140
5	19	8	18	52	1088	1176	5	11	3	17	49	1083	1169
TOTAL	23	60	70	111	1187	1451	TOTAL	23	60	70	111	1187	1451
HEICKE	SKILL	SCOR	ε		,	0.43927	HE I DKE	SKILL	SCOR	F			0.43503
	LUND	CONT	INGEN	CY P	ROGNOSI	ıs		MULTIP	LF D15	SCRIM	[NAN]	T ANAL	<b>Y</b> \$15
		(	OBSER	VFቦ					•	NBSER	VED		
FORE- CAST	1	2	•	4	5	TOTAL	FORE- CAST	ı	,	3	4	5	TOTAL
1	c	3	a	•	0	1	t	2	5	6	0	2	15
2	u	34	12	9	28	94	2	н	71	7	5	16	57
3	ı	13	23	9	24	7.1	3	0	15	24	9	12	63
4	2	10	55	1.4	178	276	4	3	4	22	5 fs	61	153
5	J	5	,	24	)57	1011	5	10	10	11	39	1096	1166
10146	23	60	1^	111	1197	1451	TOTAL	23	60	19	111	1187	1451
HETOKE	skill	SCOR	τ		(	0.379#9	id Tokt	skitt	7( <sup>1)</sup> R	ŧ			0.4571

i.

### VERIFICATION OF 7 HOUR CEILING FORECASTS TOLEWILD INTERNATIONAL AIRPORT THE VERIFICATION CRITERION IS THE HEIDEL SKILL SCORE

		PER	5151	ENCE					SI	NATEC	1146		
		0	HSF9	VED					,	ひりろしゃ	VFO		
FOPE- CAST	ı	2	,	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
1	5	3	2	1	15	27	ı	2	o	0	c	0	2
2	8	20	4	9	20	61	2	10	21	5	6	13	55
٤	1	15	16	18	24	14	3	4	20	28	23	21	96
4	3	7	17	29	57	113	4	2	10	16	44	54	126
5	6	16	21	69	1065	1177	5	ı	10	11	53	1093	1173
JA 101	24	61	60	126	1181	145?	FOTAL	24	61	60	126	1181	1452
HE ICKE	SKILL	SCORE				0.32557	HFIDKE	SKILL	SCOP	E			0.43830

CLIMAT	01.001	CAL F	XPECT	ENCY	OF PE	RSISTENCE			(	GROUP	!NG		
			CASER	VEO					1	DBSER	VED		
FORE- CASI	1	2	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	FOTAL
1	e	o	0	G	C	0	1	2	i	1	o	2	6
2	11	14	4	2	26	57	2	ê	18	6	5	17	54
3	4	18	16	16	28	84	3	2	7	10	7	8	34
4	3	13	19	37	62	134	4	4	16	28	42	84	174
5,	6	16	21	69	1065	1177	5	8	19	15	12	1070	1184
TOTAL	24	51	60	176	1181	1452	TOTAL	24	61	60	126	1181	1452
HEICKE	SKILL	SCOR	F			0.31426	HEIDKE	SKILL	SCORE	i .			0.32602

	LUND	COVI	INGEN	ICY P	ROSNOS	t S		PUL T I P	LE DI	SCRIM	INAN	S ANAL	YSIS
		1	OBSER	VED						QBSEH	VED		
FORE- CAST	1	?	3	4	5	TOTAL	FORF- CAST	ı	2	3	4	5	TOTAL
1	c	9	c	0	c	c	i	ı	0	o	С	1	2
2	13	21	5	7	36	82	?	4	10	6	5	14	39
3	4	15	1,	22	24	he	3	5	12	11	8	12	48
4	3	19	24	4 }	97	183	4	4	16	27	41	54	142
>	4	15	12	48	1020	1633	5	10	23	16	72	1100	1221
TOTAL	24	61	6¢	126	1181	1452	TETAL	24	61	ćυ	126	1181	1452
He Itat	>×1LL	\( t)R	;		•	0.3473/	of 10kt	9 III	S( 4	í			0.13117

### VERIFICATION OF 3 HOUR VISIBILITY FORECASTS IDLEWILD INTERNATIONAL AIRPORT THE VERIFICATION CRITERION IS THE HEIDRE SKILL SCORE

PERSISTENCE

SUBJECTIVE

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									_				
		•	UHSEK	Λ£ν						OBSER	AF C		
FORF- CAST	1	2	,	4	5	TOTAL	FEIME- Cast	1	2	3	4	5	JATOL
1	14	4	2	5	6	31	τ	2	1	С	ı	4	8
2	3	3	7	0	6	19	?	,	y	5	3	6	32
3	3	i	7	4	14	29	3	6	6	14	3	17	46
4	С	ò	7	ь	24	45	4	5	4	13	26	36	78
5	5	8	17	31	1151	1212	5	3	>	8	21	1135	1172
101AL	25	22	40	48	1201	1336	TUTAL	25	22	40	44	1201	1336
HEICKE	SKILL	SCUR	£		(	0.29854	HEIOKE	SKILL	SCOR	t			0.39644
CLIMAT	010610	(AL E)	(PECTI	FNCY	OF PER	SISTENCE			C	SROUP	l 4G		
		(	OBSER	VEP					C	OBSERY	/ED		
FORE- CAST	1	2	3	4	5	FOTAL	FORE- CAST	1	2	3	4	5	TOTAL
1	14	5	3	5	8	35	ī	12	4	6	7	19	48
2	3	i	?	0	3	9	2	o	0	1	1	1	3
3	1	2	10	3	10	26	3	2	1	8	2	11	24
4	2	6	Ą	9	29	54	4	5	7	7	9	29	57
5	5	8	17	31	1151	1212	5	6	10	18	79	1141	1204
TOTAL	25	22	40	48	1201	1336	TOTAL	25	22	40	48	1201	1336
HEICKE	SKILL	SCURE	:		o	. 30717	HETOKE	SKILL	SCORE	Ē			0.2628)
	LUND	CONT	INGENI	CY PR	LOGNESI	s		MULTSPI	LE DIS	SC414	[NAN]	T ANAL	4818
		(	OBSER	ven					(	DBSER	∕€D		
FORE- CAST	ı	2	3	4	5	TOTAL	FIRE - Cast	1	2	3	4	5	JATOI
1	c	o	0	ί	c	a	1	12	2	3	3	¢.	26
2	17	6	þ	5	11	4.7	?	1	5	1	c	2	9
3	3	ı	5	ı	4	14	\$	6	5	6	1	7	25
4	٠,	6	9	10	32	57	4.	2	4	17	13	43	19
5	5	7	14	12	1154	1218	5	4	6	13	31	1143	1177
TOTAL	25	12	4.3	47	1201	1016	TITAL	25	.55	40	4 M	1201	1336
HEIEKE	skni	\$cn3	f		6	0.24234	***   E K	Sette	SCER				*, 25 (4)

### VERIFICATION OF S HODE VISIBILITY FORECASTS IDLEWILD INTERNATIONAL AIRPORT THE VERIFICATION CRITERION IS THE HEIDRE SKILL SCORE

SUBJECTIVE

PERSISTING

HEICKE SKILL SCORE

ATT.

		7.6	~313	• • •							,00,31				
			OBSE	KAFD							OBSE	NVED			
FORF- CAST	1	?	3		4	5	TOTAL	FORE- CASI	ı	2	3		•	5	TOTAL
1	16	4	ז		?	10	31	1	4	,	4)		1	2	19
2	2	4	ŧ		2	3	20	2	7	5	7		2	11	27
3	t	3	2		4	20	10	3	5	5	9	i	B	27	54
4	2	ž	7		4	32	45	4	1	3	4		4	44	60
5	12	9	14	3	5 11	15	1185	5	10	7	14	2	7 11	102	1160
TOTAL	27	22	29	4	7 1:	86	1311	TCTAL	21	5.5	30	4	7 11	186	1311
HEICKE	SKILL	\$ <b>C</b> 09	f			6.	19227	HEIDKE	SKILL	SCO	kE			٥.	.24170
CL 1*	'A10L0	GICAL	L EXP	ecte	NCY	OF P	ERSISTENCE				Gı	I ANUI	46		
			68	SFRV	IFF						91	SERV	ED		
FORE- CAST		1	2	3	4	5	TOTAL	FURE	-	1	2	3	4	5	ATCT
ı	1	С	5	2	ı	9	21	1		3	4	5	2	18	32
2		1	3	ì	0	5	10	7		3	1	?	3	9	18
3		ı	2	5	3	11	22	3		7	ı	7	6	20	46
4		3	2	6	5	30	46	4		?	3	ι	2	14	22
5	1	2 1	10	15	18	1131	1205	5	1	12	8	14	34	1125	1193
TOTAL	. 2	1 2	22	29	41	1186	1311	TOTAL		?7	55	24	47	11#6	1311
HE I DK	E SKI	Li SC	ORF				0.21060	HF 101	(E SK)	ikk S	CORF				0.18013
	LUND	CONT	INGE	NCY I	PROG:	NOSIS		*	ULTIP	LE DI	SCRI	FINAN	IT A	NALYS	15
		4	08SE	CBVP							DBSE	RVED			
FORE- CAST	1	2	3		•	5	1014L	FORE~ CAST	1	2	5	•	,	5	TOTAL
ı	c	9	c	(	)	0	0	1	1	3	1	1		4	16
2	10	7	,	;	3	16	44	2	ı	4	2	2		5	14
3	4	5	7	•		9 Z	106	•	8	5	6	4		37	60
4	3	7	3	7	3 1 3	14	135	4	ı	5	5	7		17	35
5	10	3	11	26	9 9	74	1026	5	10	•	15	33	11	23	1164
FO1 AL	21	22	27	4 7	7 110	36	1311	TOTAL	27	22	79	47	11	94	1311
											• /	. •	- •		

HETOKE SKILL SCORE

0.24398

0.17377

### VERIFICATION OF 7 MINOR VISIBILITY FORECASTS 100 FMILE INTERNATIONAL AIRPINI THE VERIFICATION CRITERION IN THE METONE SKILL SCORE

		PFR	SISTE	4C+					Su	HIFCT	tvi		
		a	nsee 4	٤٦					r,	85F# 4	f í		
FORE- CAST	ı	2	3	4	5	10146	FCRE-	1	7	3	4	5	TOTAL
1	10	υ	4	2	15	31	i	2	ı	ı		0	4
2	3	ı	5	1	10	20	,	7	4	5	ì	11	28
3	2	3	3	i	2?	31	3	10	3	3.5	10	28	69
4	ŧ	2	4	2	16	45	4	2	2	ಕ	7	45	64
5	15	12	26	44	1114	1211	5	15	3	15	32	1113	1173
101AL	31	18	42	50	1147	1338	TOTAL	31	13	42	5.	1197	1339
+E1CXE	SKILL	SCORE			0.	.05671	HEICKE	SKILL	SCORE			c.	.21824
CLIPAI	IULAGI	CAL E	KPECTI	FNCY	OF PER	SISTENCE				800P)			
		;	DASEK	ven					6	RSER	VED		
FURE- CAST	1	2	Ł	4	5	IGIAL	FOPE- Casi	ı	2	3	4	5	TOTAL
ì	6	0	5	1	19	22	ŧ	н	6	3	3	36	67
2	2	5	3	1	9	17	2	2	1	2	5	12	22
3	7	2	4	2	26	43	3	4	3	?	3	40	52
4	G	0	2	С	17	19	4	5	e	2	2	3.8	47
5	16	14	28	46	1133	1237	5	12	8	27	37	1071	1155
TCTAL	31	18	47	56	1197	133+	ECIAL	31	18	42	sc	1197	1338
HETUKE	s×tci	SCOR	f		(	7.02347	HE 1041	· SKILL	SCCR	F		(	0.06451
	LUNG	ויפט :	INGEN	,C Y =	406465)	15		art 116	יננ מו	५८० । ५	17444	T AMALI	rs15
			04568	VED						OASEB	VEC		
FE RF~	ι	2	,	4	. 5	10.171	FPPF~ CAST	ι	,	1	4	5	TOTAL
1	ŗ	a	n		¢	;		10	3	,	?	?	23
•	e	•	•	4	; c	•	7	r	ı	4	3	5.5	37
3	٤.	'n	11	,	. 49	92	\$	ì	ì	2	1	5	10
4	1	1	ı	•	5 35	45	4	4	1	8	•	60	70
,	,	1>	28	• ,	1114	1211	5	14	6	21	• •	1246	1177

31 1 42 50 1177 1335

miliar calle in the

J. C. 1617

18 47 5° 1197

mether solds a co

1338

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### VERIFICATION OF 2 HOUR CEILING FURECASTS OFFUTT AFB. OMAHA. NEBRASKA THE VERIFICATION CRITERION IS THE METOKE SKILL SCORE

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		PEI	<2121°	30k°			\$193FC1F4F								
		(	ORSE#	AED.			ORZEGAED								
FARE- CAST	1	,	3	4	5	1014L	FOPF- CAST	ŧ	2	5	•	5	TOTAL		
i	1	1	ì	0	0	3	1	Q	0	9	1	8	9		
2	9	21	2	4	1	28	2	0	21	3	5	•	30		
3	9	2	9	1	2	14	1	0	5	7	5	3	22		
4	c	3	2	60	26	91	4	ŋ	2	2	54	29	87		
5	ς	4	2	20	532	558	5	1	3	5	23	517	545		
JA101	1	31	16	85	561	694	TOTAL	1	31	16	5	551	694		
HEIDKE	HEIDKE SKILL SCORE 0.71164						HEIDKE SKILL SCORE 0.63626								
CLINATE	DK 06 10	C&L EI	(PECT)	ENCY	OF PER	ISTSTENCE			C	GROUP	ING				
		C	Josefi	VED			OBSERVED								
FORE- CAST	1	2	3	4	5	TOTAL	FCRE- CAST	ı	5	3	4	5	TOTAL		
1	o	o	e	1	c	1	1	1	ŧ	1	c	0	3		
2	1	22	3	3	1	30	2	J	21	2	5	1	29		
3	0	2	9	Ł	2	14	3	c	2	•	C	2	13		
4	c	3	7	60	26	91	4	э	3	2	60	26	91		
5	9	4	2	20	532	558	5	0	4	Z	20	532	558		
FOFAL	1	31	16	45	561	694	FOTAL	1	31	16	65	561	674		
HETCKE SKILL SCORE 0.71155						HEIDKE SKILL SCORE 0.71163									

	LUNG	CONT	INGEN(	CY PA	GGNDS	15	MULTIPLE DISCRIPINANT ANALYSIS GHSERVED							
		i	DESERI	Vξn										
FOPE- CASI	ι	,	3	4	5	TOTAL	ERRE-	1	5	3	4	5	FOTAL	
i	o	า	c	υ	c	•	ŧ	ı	ı	1	c	0	3	
ż	1	27	3	4	1	31	,	0	20	1	4	2	24	
3	c	?	٠	ì	2	14	1	0	2	7	ł	ì	11	
٤	¢	4	•	70	1.1	175	•	<i>f</i> ,	•	3	٠,	14	? ?	
5	r	•	1	16	447	461	*	ť	4	7	24	544	574	
TOTAL	i	31	16	24,	561	674	FOTAL	1	31	16	*7	561	694	
9:E 11 # E	office skift scoop					within fatter or her and arrival								

### VERIFICATION OF 4 HOUR CEILING FORECASTS OFFUTT ARB. CHANA. NERRASKA THE VERIFICATION CRITERION IS THE HEIDKE SKILL SCOPE

PERSISTENCE OHSERVEI SUBJECTIVE

OBSERVED

FORE- CAST	i	,	1	4	5	INTAL	FORE- CAST	1	2	3	4	5	TOTAL
ı	ı	o	o	1	2	•	ì	1	2	1	ı	4	9
>	>	ii	6	3	5	27	7	o	4	7	5	5	24
3	9	3	٥	4	?	15	3	1	Ĥ	6	è	5	28
4	0	4	3	13	35	75	4	1	į	4	36	29	71
5	n	6	4	23	494	531	5	0	4	5	16	495	520
TOTAL	3	24	23	64	538	657	TOTAL	ì	24	23	64	538	652
HEICKE	SKILL	SCORE	ξ		0	.52942	HEIDKE	SKILL	SCOR	F		1	0.55533
CLIMATE	araete	AL EX	PECTE	ACA (	OF PE45	SISTENCE				ROUP I			
		r	RSERV	ŀΕŋ					C	MSERY	/ED		
FORÉ- CAST	1	2	3	4	5	TOTAL	FGRE- CAST	1	į	3	4	5	LATOT
1	o	1	a	U	O	1	1	7	ı	ŧ	2	2	5
2	3	12	7	•	9	3,	2	o	4	2	2	0	8
•	0	3	1	l	0	2	3	9	3	7	1	1	4
4	0	5	7	35	36	43	4	ì	12	9	31	39	92
5	0	C	H	73	494	531	5	0	7	9	28	496	540
TOTAL	3	24	23	54	538	65?	FGFAL	3	24	23	54	536	652
HEIDKE	HEIDKE SKILL SCORE 0.5141:						METOKE S	SKILL	SCOR	E		(	.46456
	LUNO	CONTI	INGEN	CY PR	064851	s	M	st [1P	LF DI	SERIM	IYANI	ANAL	rsis
		(	りりらそれ	<b>/</b> £0					,	085ER	<b>v</b> F D		
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	ì	2	3	4	5	TOTAL
3	a	О	c	0	G	0	1	ı	0	o	0	2	3
2	3	11	6	4	7	31	?	2	10	5	3	3	23
3	c	3	4	4	¢	11	3	c	?	3	3		10
4	¢	*	4	41,	8>	15?	4	C	5	8	35	7	78
5	ō	?	4	tu	442	458	•	o	4	7	23	50 -	538
JA101	3	24	23	54	538	657	TOTAL	3	24	23	64	538	652
HEIERT SXILL SCORE 0.45570													

# VERIFICATION OF 6 HOUR CELLING FORECASTS OFFULT AFB, OPAHA, VEBPASKA THE /SRIFICATION CHITERION IS THE HEIDRE SKILL SCOKE

		PF	45151	FUCE			~	ZNB3EC11AF								
			ORSER	SAFU				DB2E5AFD								
FORE- CASI	1	2	3	4	5	TOTAL		FIRE- CAST	ŧ	2	3	4	5	TOTAL		
1	ı	5	3	1	i	į		t	¢	2	Ú	i	6	?		
2	1	7	6	3	9	26		5	1	5	5	5	5	21		
5	t	2	4	4	4	14		3	0	2	h	Q	5	22		
4	9	4	5	35	38	80		4	1	3	3	36	38	91		
5	3	3	٥	33	499	541		5	r	4	5	25	497	531		
1014L	•	15	Ð	76	551	6.64		TOTAL	,	15	13	16	551	664		
HETOKE	SKILL	SCHR	F		C	.48925		HEIDKF	SKILL	SCOF	₹€		ı	0.49705		
CLIMATA	JE0610	CÁL E)	1339	ENCY	OF PER	SISTENCE					GRGUP	ING				
		(	OBSER	v£7							ORSER					
FORE- CASI	1	2	3	4	5	FOTAL		FORE- CAST	ı	2	3	4	5	TOTAL		
I	c	1	э	0	0	1		1	2	1	0	2	i	6		
2	?	6	5	5	12	31		,	9	э	0	ø	0	o		
3	r	0	•	า	r	0		3	e	ò	q	3	12	32		
4	e	ь	7	38	40	<b>?1</b>		4	С	1	ι	4	1	7		
5	c	3	6	33	499	541		5	9	6	4	67	537	610		
131AL	?	16	19	76	551	664		FOTAL	2	16	14	76	551	804		
HEICKE SKILL SCORE 0.47347								METOKE SKILL SCORE 0.38059								
	LUND	CONFI	NGEN	Y PR	06 <b>%</b> C511	\$		M	11 f 1 P s	F 015	C-lim	INANI	ANAI V	¢1¢		
		r	HSER	YF N				MILITPLE DISCRIMIN OBSERVE								
FORE- CAST	ì	?	3	4	5	TOTAL		FORE- CAST	1	ž	3	4	•	T01#L		
1	٥	o	0	ų,	С	٠,		t	o	0	o	i	ı	?		
2	?	4	4	4	9	23		2	5	9	8	6	5	29		
\$	^	¢	1	2	2	5		1		•	0	3	2	5		
4	ſ	17	17	5 3	105	179		4	Ċ	5	6	34	22	6.7		
ń		3	4	17	4 3 4	451		5		3	5	37	521	561		
TUT AL	7	16	13	76	551	664		FOTAL	2	16	19	76	551	664		
m 1680 SKHU SCO2 0.39324								HERDKY CARLESTONE 0.53543					. 5 154 1			

### VERIFICATION OF 2 HOUR VISIBILITY FORECASTS OFFUTT AFB, OMAHA, NEHRASKA THE VERIFICATION CRITERION IS THE HEIDKE SKILL SCORE

SUBJECTIVE

PERSISTENCE

		νίκ	21211	41.1			20875C1145								
O&SERVED							OBSERVEO								
FORE CAST	ı	2	3	4	5	TOTAL	F (145+	1	2	3	4	5	TOTAL		
1	3	9	۸	(	c	3	ı	3	э	o	4	1	4		
2	0	4	0	1	3	Ą	2	G	0	0	ı	0	1		
3	r	3	6	4	4	17	3	o	5	5	״	6	21		
4	C	0	4	ι	a	22	4	r	3	7	В	14	32		
5	2	1	7	10	624	644	5	2	,	7	1	418	636		
101AL	5	4	21	51	639	694	TCTAL	5	3	71	21	63.	694		
HEIFKE	Srlic	SCORE	•		o	.47974	HETOKE	SKILL	SCORE	i .		0	.42825		
CLIPAT	01.0610	.AL E	xrect	FNC Y	OF PEP	SISTENCE			,	GROUP	ING				
		:	DBSER	VED					(	OBSEP	VFD				
FORE- CAST	ı	2	3	·	٠	TOTAL	FORE- CAS <sup>†</sup>	1	2	3	4	5	TOTAL		
1	;	ə	n	e	c	3	1	3	0	9	c	ð	3		
7	,	ŋ	0	¢	c	ε	2	c	i	С	•	2	1		
3	c	1	1.	5	7	25	3	e	ז	6	5	6	22		
•	ŗ	n	8	b	ь	??	4	c	i	7	•	1	20		
5	>	1	7	10	624	640	5	2	1	8	11	626	648		
TOTAL	5	9	2 i	21	637	694	FOTAL	5	9	51	21	639	694		
HE TOKE	SKILL	SCORI	F		o	.43761	HETOKE		o	.43760					
	CAVD	CONTI	፤ ካሳ€ ካ	Y P 3	nosnes I	s	М	ULT1PL	E DI	SCRIM	INANI	T ANALY	\$15		
OB serve									1	OBSER	VFD				
r	ī	7	3	4	,	TOTAL	FORE- CAST	1	2	3	4.	5	TOTAL		
i	r	c	•		•	c	1	3	0	0	э	1	4		
2	,		^		7	•	,	c	0	0	0	0	o		
3		1			4	2 -	3	C	1	6	4	6	23		
4		,	; •	1 4	47	71	•	1	1	3	3	4	10		
`	1			,	,40	511	4	?	1	17	14	628	657		
151 N	•	7	24	- 1	63.	6 14	Tt TAL	,	h	21	21	639	694		
offickt sets ( a 2,30)20						.3426	+11 1 ( K	(×)11	\( \ \	ŧ			1231		

# VERIFICATION OF 4 HOUR VISIBILITY FORECASTS CFFUTT AFB, OMAHA, "FBRASKA THE VERIFICATION CRITERION IS THE MEIDKE SKILL SCORE

		PE	251511	FNCE					Şt	IBJEC 1	TVE		
		C	OBSFR	<b>VF</b> P					•	)BSER;	/FD		
FURE- CAST	ı	2	3	4	5	TOTAL	FORE- CAST	ı	2	3	4	5	TOTAL
1	3	0	3	0	e	3	1	2	0	0	0	0	2
2	1	1	э	0	4	6	2	1	0	2	0	0	3
3	O	1	7	b	4	18	3	ì	ı	3	5	11	21
4	e	1	4	5	12	5.5	4	e	4	4	6	16	30
5	J	2	7	14	616	644	5	0	0	9	19	609	637
TOTAL	4	5	19	30)	636	693	TOTAL	4	5	18	30	636	693
HEIDKE SKILL SCORE 0.37066							HEIDKE S	KILL	SCOR	E		0	.29182

CL IMAT	UF 0C1C	AL E	KPECTI	FNCY	OF PER	RSISTENCE			1	GROUP	ING		
		(	OBSE41	VED					1	OBSER	VED		
FURF- CAST	l	2	3	-	5	TOTAL	FORE- CAST	i	2	3	4	5	TOTAL
1	3	0	0	o	c	3	1	?	າ	0	o	2	4
2	o	0	0	0	c	c	?	٥	0	o	0	0	o
3	1	?	7	6	8	24	3	2	2	5	6	6	22
4	o	ı	3	4	11	19	4	0	1	3	3	11	18
5	(°	2	8	20	617	647	5	0	2	5	21	617	649
TOTAL	4	5	14	30	636	693	TOTAL	4	5	18	30	636	693
HEICKE	SKILL	SCOR	F		C	0.34150	HEIDKE	SKILL	SCOR	E		0	. 29643

	LUND	CGNT	INGFN	CY PR	IOGNOSI	s	MI	ULTIPLE	011	SCRIM	INANT	ANALY:	213
		,	DBSER	VED					(	DBSER	ve D		
FORE- CAST	1	5	3	4	5	TOTAL	FURE- CAST	1	2	3	4	5	TOTAL
1	c	o	^	c	c	0	ι	3	0	0	э	ı	4
` 2	?	C	n	c	3	۲	?	C	ı	0	0	3	4
3	2	2	7	ů	4	21	3	o	)	1	3	1	5
4	c	ι	5	9	25	41	4	ı	2	10		11	26
<b>5</b>	•	2	6	15	663	676	5	9	2	,	25	620	654
TOTAL	4	5	18	30	636	693	TOTAL	4	5	18	30	636	693
rf Inkt	SKILL	SCARI	ŧ		٥	. 34437	HETEKE	SKILL S	( 191	;		С	. 24929

# VERIFICATION OF & HOUR VISIPILITY FURFCASTS UFFULT AFB, OMAHA, NERRASKA THE VERIFICATION CRITERION IS THE HEIDRE SKILL SCOPE

		PER	SIST	INCE					St	IRTEC	IVE		
		C	IRSERI	/ED					(	nesek:	VFC		
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	ı	?	3	4	5	TOTAL
1	3	0	G	0	o	3	1	c	0	0	n	^	0
2	0	0	1	0	6	7	2	o	0	2	0	J	2
3	0	2	3	5	3	13	1	3	0	0	5	5	13
4	0	Ð	2	3	15	26	4	0	1	1	4	12	18
5	c	0	8	15	552	575	5	0	1	11	14	559	585
TOTAL	3	2	14	23	576	618	FOTAL	3	2	14	23	516	618
HETCKE	SKILL	SCOR	E		0	. 33602	HETDKE	SKILL	SCOR	E		ი	. 28334
CLIMATO	9L0G1C	AL EX	PECTE	NCY :	OF PERS	SISTENCE			C	GROUP	NG		
		0	BSERV	/E0					(	)85ER\	ED		
FORE- CAST	ı	2	3	4	5	TOTAL	FORE~ CAST	1	2	3	4	5	TOTAL
1	3	С	n	c	0	3	1	3	0	1	2	2	8
2	0	0	o	C	0	9	2	0	0	0	0	4	4
3	0	2	3	5	7	17	3	0	1	3	7	17	28
4	c	0	1	3	13	17	4	C	0	2	2	9	13
5	3	e	10	15	356	581	5	0	1	9	12	544	565
TOTAL	3	2	14	23	576	618	TOTAL	3	2	14	23	576	618
HEICKE	SKILL	SCORE	:		o	.34050	HEIDKE	SKILL	SCOR	E		0.	. 30460
	LUND	CONT	INGEN	CY P	ROGNOSI	s	,	4'L T 1 P!	LE DI	SCRIM	INAN	T ANALY	SIS
		(	OBSER	VEC						OBSER	VED		
FORE- CAST	1	2	3	•	5	-TOTAL	FORE- CAST	ı	2	3	4	5	TOTAL
1	ŗ	3	)	o	С	0	ì	ı	o	0	0	1	2
2	G	0	1	3	c	0	2	0	0	0	į	0	l
3	•	2	4	,	9	>3	3	2	1	3	2	4	12
4	r	o	3	٠.	57	13	4	r	1	4	4	17	26
5	ί	(·	7	r	510	7 <sup>7</sup> 5	5	0	)	7	16	554	577
TOTAL	3	7	14	٠,	576	61 N	TOTAL	3	2	14	23	576	616
HE I E KE	skill	SCOR	f		(	0.211)1	HEIDKE	SKILL	s, c n	21		ď	1.10+

#### VERTFICATION OF 2 HOUR CEILING FORFCASTS RANDOLPH AFH, SAN ANTONIO, TEXAS THE VERTFICATION CRITERION IS THE HEIDKE SKILL SCOKE

SUBJECTIVE

78

445

692

0.61881

17 419

14 113 101 460

PERSISTENCE

			OBSE	k V F D						กษรยห	vFD		
FORE-	ι	2	3	4	>	TOTAL	FORE- CAST	1	,	3	4	5	TOTAL
1	4	2	4	1	0	11	ı	ı	ı	2	1	1	ð
2	0	4	1	2	1	14	?	7	6	6	2	O	16
3	0	6	74	27	16	123	3	1	6	15	28	16	126
4	U	0	14	52	18	H4	4	0	1	19	48	27	95
5	า	?	14	19	425	46C	5	0	0	11	22	416	449
TOTAL	4	14	113	101	460	692	TOTAL	4	14	113	101	460	692
HF I DKE	SKILL	Sco	ĸE	•	(	0.61901	HE LOKE	SKILL	scor	tE.			0.58829
CLIMAI	LOFUETO	AL E	XPECT	FNCA	NF PER	SISTENCE			1	6ROUP	ING		
			NHSFR	VED					1	DBSER	4FD		
FURE- CAST	ı	2	3	4	5	TOTAL	FORE- CAST	ı	2	3	4	5	TOTAL
1	4	2	4	ı	0	11	1	3	4	4	i	0	12
2	0	2	6		1	10	?	0	ı	3	1	0	5
3	O	8	75	2 H	16	127	3	ı	6	76	25	17	125
4	0	0	14	52	18	84	4	0	2	19	56	26	103
5	O.	2	14	19	425	460	5	0	i	11	18	417	447
TOTAL	4	14	113	101	460	692	TOTAL	4	14	113	101	460	692
HEEDKF	SKILL	SCTR	E		0	. 61566	HEIDKE S	KILL	SCOR	Ē		0	-60854
	ԼԱԿՌ	CONT	INGEN	ICY PR	OGNOSI	\$	M	JL T I P L	F DI	SCRIM	TMAPL	ANALY	515
			OBSER	VED					(	IBSER	ven		
FIIRI - CAST	1	,	,	4	5	TOTAL	FORE- CAST	ı	2	3	4	5	TOTAL
1	ť	0	n	(	o	(°	1	4	3	5	ı	0	13
2	4	4	9	2	1	<b></b>	,	0	2	3	ì	0	6
\$	r	H	14	,'6	15	123	1	c	7	H 5	36	22	150

TBTAL

HEIDRE SKILL SCORE

32

441

692

G.58351

19 412

14

14 113 101 460

TITLAL

BUTTAR SKILL SCORE

## VERIFICATION OF 4 HOUR CEILING FORECASIS RANDOLPH AFB. SAN ANTONIO, TEXAS THE VERIFICATION CRITERION IS THE HEIDKE SKILL SCORE

SUBJECTIVE

DASFRVED

PERSISTENCE

OBSERVED

FORF- CAST	1	,	3	4	5	TOTAL		FORE- CAST	1	,	3	4	5	TOTAL
1	n	4	4	2	ı	11		1	0	o	0	ţ	0	o
2	2	2	9	:	2	13		2	0	2	5	1	o	8
3	o	3	39	29	49	126		3	0	6	45	74	7	82
4	n	ι	11	40	26	78		4	o	1	19	48	47	115
5	0	0	18	35	405	458		5	0	ı	12	3 3	429	475
TOTAL	c	10	81	106	483	680		TOTAL	0	10	81	106	483	680
HETÜKE	SKILL	SCOR	E			0.42901		HEIDKE	SKILL	SCUR	£			C.52439
CLIMAT	01.0010	CAL E	XPECI	ENCY	OF PEI	RSISTENCE				(	GROUP	IMG		
		1	08 <b>SE</b> ?	VED						(	DBSER	VF D		
FORE- CAST	1	2	3	4	5	TOTAL		ORE-	1	2	3	4	5	TOTAL
1	r	1	2	1	1	5		1	0	4	3	2	3	12
2	0	0	2	э	0	2		,	0	Ł	5	1	2	9
J	c	7	32	19	23	81		3	G	4	44	29	49	125
4	o	?	27	51	54	134		4	c	1	15	41	44	101
5	0	0	18	35	405	458		5	0	ð	14	34	385	433
TOTAL	)	10	81	196	483	680	τ	DTAL	0	10	81	106	483	680
PEICKE S	SKILL	SCORE	<u>.</u>		C	3 <b>.4</b> 3624	н	IE IDKE	SKILL	SCORE	ŧ		c	.40767
	LUND	CONT	INGEN	CY PR	OGNOS I	s		M	ULTIPL	E D15	CRIM	IVANT	ANALY	\$15
		ŗ	IRSER	ν£n						Q	BSER	νEυ		
FORE- CAST	ı	2	3	4	5	TOTAL	F	ORE~ AST	ı	2	3	4	5	TOTAL
1	c	ŋ	o	c	C	3		1	0	5	4	1	0	16
2	٦	6	n	2	ı	17		2	0	0	c	e	c	0
3	3	3	47	24	40	.0)		3	e	4	51	34	49	142
4	•	1	16	٠1	62	136		4	<i>t</i>	i	11	~ i	36	4 7
>	^	1	15	29	380	474		5		1	15	2.	39H	439
TCTAL	¢	16	Аl	176	46,5	64	ī	CTAL	^	10	*I	105	483	680
+FIL≺L 2	≺tet	ડ૮તવક			o	.43617	**	F LUK+ :	·m	ડા ને			^	

# VERIFICATION OF 6 HOUR CEILING FORECASTS RANDOLPH AFB, SAN ANTONIG, TEXAS THE VERIFICATION CRITERION IS THE HEIDEC SKILL SCORE

PERSISTENCE

OBSERVED

SUBJECTIVE

ORSERVED

		ŋ	BSFRV	ED					_		_		
FORE- CAST	ı	5	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
1	0	ı	3	÷	2	11	1	0	0	0	1	0	1
2	0	ı	6	3	3	13	2	1	S	6	ı	0	10
3	2	6	29	23	59	119	3	ı	7	48	21	26	103
4	0	2	18	. 8	30	78	4	0	1	19	38	38	96
5	1	3	24	40	389	457	5	ŧ	3	7	38	419	468
TOTAL	1	13	80	94	483	678	TOTAL	3	13	80	49	443	678
HEIDKE	SKILL	SCOR	F		0	31772	HEIDKE	SKILL	SCOR	E		0.	, 48299
C) THAT	or ac tC	At F1	(PECT	FYCY (	JF PERS	ISTENCE			C	SROUP	ING		
CCIPAT	0, 0,,10		BSER						(	DBSER	VEO		
FORE- CAST	1	2	3	•	5	TOTAL	FORE- CAST	ı	2	5	4	5	TOTAL
ı	o	0	2	2	1	5	1	0	1	ı	3	3	
2	n	G	2	0	0	2	2	0	1	4	3	1	y
3	2	8	52	18	31	61	3	1	3	31	23	37	95
4	0	0	56	37	58	121	4	1	5	15	31	68	120
5	1	5	28	42	393	469	5	1	3	59	39	374	446
TOTAL	3	13	80	99	483	678	TOTAL	3	IJ	80	99	483	678
HEICKE	skili	SCOR	.E		0	.31389	HETOKE	SKILL	SCOR	E		0	.29775
	1.090	can	r INGE	NCY PI	ROGNOS1	s		MULTIP	LE 01	ISCRIM	INANT	ANALY	212
	• • • • • • • • • • • • • • • • • • • •		UHSE							OBSE	CBV		
FORE- CAST	ı	2	3	4	5	TOTAL	FORE- Cast	1	2	3	4	5	TOTAL
,	0	n	0	٥	0	c	ι	0	ı	2	3	G	6
1	,					54	2	6	0	2	0	0	2
3	1	1				25	3	2	9	43	30	28	112
,	•					181	4	0	0	13	28	60	101
5	•				359	417	5	ı	3	53	38	395	457
3A101	3				483	674	TOTAL	3	13	60	99	483	578
H£10K)	r skil	i 509	HΕ			0.2794C	4E I DR	IF SKIL	1 500	IK E			0. 164H6

# VERIFICATION OF 2 HOUR VISIBILITY FORECASTS RANDOLPH AFB, SAN ANTONIO, TEXAS THE VERIFICATION CRITERION IS THE HEIDKE SKILL SCURE

SUBJECTIVE

PERSISTENCE

HETCKE SKILL SCORE

TOTAL
TOTAL
4
5
25
23
640
702
35620
JATOT
9
11
23
10
649
702
36516
15
TOTAL
5
2
28
12
655
702

HETCKE SKILL SE 41

0.27655

# VERIFICATION OF 4 HOLD VISIBILITY FURECASTS RANDOLPH AFH, SAN ANTONIC, TEXAS THE VERIFICATION CRITERIUM IS THE HEIDKE SKILL SCURE

SUBJECTIVE

619

0.42054

PERSISTENCE

									•	003(2			
			OHSER	VEO	-					OBSER	AFD		
FORE- CAST	1	2	3	4	5	TOTAL	FORE~ Cast	ı	2	3	4	5	TOTAL
ı	1	0	7	1		12	ı	c	0	0	c	o	c
5	0	e	2	G	3	3	2	9	0	0	С	1	1
3	0	0	4	3	8	15	3	0	0	7	4	5	16
4	c	າ	4	2	12	1.8	4	0	0	4	3	13	20
5	G	0	7	8	617	632	5	ı	G	ρ	,	629	645
TOTAL	1	0	19	14	648	682	TOTAL	1	e	19	14	548	682
HETCKE	E SKILL	. SCOR	£		•	0.36917	HEIDKE	SKILL	SCOR	E		C	0.46186
CLIMA	VI OLOGI	CAL E	XPECTI	FNCY	OF PER	RSISTENCE			(	GROUP	146		
		(	OBSER	/ED					(	DBSER	VED		
FORE- CAST		2	3	4	5	TOTAL	FCRE- CAST		2	3	4	5	TOTAL
ì	0	0	1	1	4	5	1	1	9	3	ı	6	11
,	С	9	C	0	e	c	5	c	ð	2	0	4	6
3	9	3	đ	2	13	23	3	0	0	4	4	17	25
4	ε	0	ı	3	1	5	4	0	O	1	1	12	14
5	1	0	3	*	630	848	5	9	0	9	ь	609	626
101AL	l	0	19		648	682	TOTAL	t	9	19	14	648	682
HETOKE	SKILL	SCORE	:		0	•46931	HETOKE	SKILL :	SCORE			0.	31204
	LUND				ngnosi	s	m	JET FREI	E GIS	CRINI	NANT	ANALY!	212
enn-		0	HSE×V	fυ					C	7SERV	EC		
FORE- CASE	1	2	3	4	٠	TOTAL	Cast Euse-	1	,	3	4	5	TOTAL
1	c	0	1	r	5	b	1	2	o	3	0	ì	5
2	r	C	,	c	c	1	2	o	0	n	o	o	0
3	ı	0	5	4	14	2~	3	0	0	6	5	21	32

HETORE SKILL SCORE

147 501

0.19751

FOTAL

HETCKE SKILL SCORE

## VERIFICATION OF 6 HIMIN VISIBILITY FURECASTS RANDOLPH AFB, SAN ANTONIO, FEXAS THE VERIFICATION CRITERION IS THE HEIDKE SKILL SCOPE

William John British and the second

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To a Short of hours which is

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*?* 

The cold of the cold of the second of the cold of the

		PER	SISTE	.∨C E					Su	18JEC 1	IVE		
		ŋ	BSERV	(ED					q	165641	IF E		
FORE~ CAST	1	2	3	4	5	10136	FORE- CAST	1	2	ś	4	5	TOTAL
ı	С	0	2	3	7	12	ı	9	·	c		ì	Ł
2	c	0	2	c	3	5	?	6	0	ō			1
3	0	1	0	1	13	15	3	1	o o	4	,	;	17
4	`	9	ė	ž	i 6	ls	4	·	i	1		11	16
5	ı	1	10	10	610	632	,	~	;	3	15	2.21	641
TOTAL	1	?	14	16	649	662	TOTAL	1	,	; L	16	649	642
HEICKE	SKILL	SCORE			c	•236HB	HEIBKES	KILL	SCORE	ŧ		6.	36008
CLIPA	tarueti	CAL E	KPECT	FACY	GF PER	SISTENCE				GKAUP	ING		
		1	DASEK	VED						CRSEP	v£Đ		
FORE- CAST	î	2	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
1	c	S	ð	1	0	1	1	c	ı	2	2	18	23
5	r	э	3	0	c	0	2	(	2	2	1	11	14
3	0	1	2	2	19	74	3	0	9	3	6	23	32
4	a	0	\$	ı	3	4	4	c	0	2	ť,	4	6
5	1	ı	12	12	627	653	5	1	1	5	7	593	607
TOTAL	1	2	14	16	649	687	ICTAL	t	2	14	16	649	682
HEIDKE	HEICKE SKILL SCORE 0.28453						HEIDKE	S×ILL	SCOR	E		0	.25178
	LUND	CONT	INGEN	CY PR	のいかしくま	s	Mag	1L [ [ P	LE BI	SCRIM	[HAN!	ANALY	515
		(	1851 67	A( i					(	OFSER	VED		
FORE- CASE	1	2	\$	4	5	TOTAL	.3PE-	1	2	3	4	5	TOTAL
1	0	c	3	L	ŗ	ç	1	n	n	2	,	,	6
,	•3	^	3	i	2	ŧ	•	C	;	o	ŧ	i	1
3	C	1	1	4	130	147	1	c	1	4	\$	11	į >

3 19

417

16 64

5

ICTAL

1

HETTER SETEL SCOTE

14

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497

147

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HERE AND ARTHUR

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1

17

618

23

633

642

1.41.37

## VERIFICATION OF 2 HOUR CEILING FORECASTS MCGUIRE AFB, WRIGHTSTOWN, N.J. THE VERIFICATION CRITERION IS THE HEIDKE SKILL SCORE

		PE	RSIST	ENCE						S	UBJEC:	TEVE		
			OASER	VED							UBSER	VE D		
FORE- CAST	1	2	3	4	5	TOTAL		RE- ST	1	5	3	4	5	TOTAL
1	ĸ	3	1	0	ı	13		1	ě	ı	1	0	4	- 11
2	3	13	3	2	0	21		2	3	10	5	G	2	20
3	0	5	22	6	3	36		3	2	11	16	6	-6	43
4	e	1	9	29	25	- 64		4	0	1	13	33	23	70
5	3	1	4	29	, 446	477		5	<b>'4</b>	e	4	25	434	467
TOTAL	14	23	39	66	469	611	ŧa	TAL	14	23	39	66	459	611
HEIDKE	SKIFF	SCOR	E		4	Ď.61177	HE	IDKE S	KILL	SCOR	Ę		•	0.54679
		٠												
CLIMAT	0F0@10	CAL E	KPECT	ENCY	OF PER	SISTENCE					GROUP	ING		
		•	OBSER	AEG						1	DBSERI	/ED		
FORE- CAST	ı	2	3	4	5	TOTAL	FO CA	RE≓ ST	ı	2	3	4	5	TOTAL
1	8	3	1	C	1	13	•	1	8	4	1 .	o	1	14-
2	2	8	2	1	0	- 13		2	3	11	3	1	0	1.6
3.	1	10	23	7	3	44		3	0	6	,27	9	3	-45
4	e	1	9	29	25	64	•	4	0	1	5	33	28	.67
5	3	ı	4	29	440	477	1	5	3	I.	3	23	437	.467
TOTAL	14	23	39	66	469	611	to	TAL	14	23	-39-	66	469	(6Ì1)
HEICKE	SKILL	SCOR	E		(	3.59549	HE.	IDKE S	KILL	SCOR	F		d	0.63617
	LUND	CONT	l NGEN	CY PA	OGNOSI	s		MU	LTIPĻ	E DĮS	inī Ro	NANT	WĤŶŁY	\$15°
		(	DBSER	VEN		•	•			.0	aserv	€D		
FORE- CAST	1	2	3	4	<b>5</b>	TOTAL	FOR	te- st	ı	2	3	4	5	HOTAL
1	0	0	o	U	0	0	1	ı	9	3	1	1	2	,16
2	11	17	4	2	1	35	.2	2	2	12	3	1	0	15:
3	G	4	24	11	7	46	;	,	ı	6	25	5	2	39
4	0	0	6	19	7	32	4	•	O	1	7	32	18	58
5	3	2	5	34	454	498	5	<b>,</b>	?	i	3	27	447	460
TOTAL	14	23	39	66	469	611	tat	TAL .	14	23	39	66	469	.∳ij∙
HEICKE	SKILL	SCORE	•		o	-60171	HE	IDKE S		SCORE	:		o	.66072

# VERIFICATION OF 4 HOUR CEILING FORECASTS MCGUIRE AFB. WRIGHTSTOWN. N.J. THE VERIFICATION CRITERION IS THE HEIDKE SKILL SCORE

			RSISTI							38JEC			
FORE-		• (	DBSER	Afu			FORE-		,	)ASER	VEI)		
CAST	1	2	3	4	5	TOTAL	CAST	ì	.2	3	4	5	TOTAL
1	O	4	2	0	3	9	1	9	3	0	9	5	5
2	0	8	7	2	1	18	7	1	4	4	ţ	1	11
3	1	?	lo	4	4	27	3	0	7	14	9	5	35
4	0	5	6	16	29	56	4	c	2	9	23	28	62
5	1,6	1	7	27	374	409	5	0	4	11	16	375	406
TOTAL	1	20	38	49	411	519	LOLVE	1	29	38	49	411	519
HEIDKE	SKILL	SCOR	Ε		o	.50920	HEIDKE	SKILL	SCOR	E		Ć	.52076
CL IMAT	100010	CAL E	XPFCT	ëvcy	OF PER	SISTENCE			(	SKOUP	ING		
	*		OBSER	VED					(	BSER	VED		
FORE- CAST	1	\$	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
1	c	1	0	0	ı	2	· 1	0	4	3	0	3	10
~ 2	o	3	5	e	3	16	. 2	6	В	5	1	2	16
<i>z</i> 3	1	5	20	6	4	36	3	ı	2	15	5	2	25
- 4.	.0	5	-6	16	29	56	4	С	5	8	18	29	60
5	0	1	7	27	374	409	5	0	1	7	25	375	408
JATOT.	÷ 1	· 20	38	49	411	517	TOTAL	1	20	38	49	411	519
HETOKE.	ſSĶĬĻĻ	SCOR	E.		0	- 52669	HETOKF	SKILL	SCOR	E		Ó	) <sub>C</sub> 51942
	LUNÓ	CONT	INGEN	CY PR	OGNOS 1	s	1	MOLTIPI	E 019	SCRIM	INANI	ANALY	515
,		· · (	OBSEK	<b>NEW</b>					(	ORSER	VED		
FORE-	1	2	3	4	5	ŤÓTAL	FORE- CAST	1	2	3	4	5	TOTAL
- 1	c	s	Q	C	O	o	1	0	3	2	0	2	1
?	٥	7	9	4	6	76	2	0	2	1	0	2	4
3	1	8	18	Ð	3	34	3	1	11	23	12	5	52
4	0	-4	7	29	85	125	4	0	2	5	19	14	40
° <b>5</b> °	- 6	1	4	Ħ	317	330	5	0	2	7	16	389	416
FOTAL	i-	20	38	44	411	519	FOTAL	i	29	38	49	411	519
HEICKE	SKILL	SCORE	F		0	.43103	HETOKE	SKILL	SCOA	Ę		Ċ	) <b>.</b> 58965

# VERIFICATION OF 6 HOUR LEILING FORECASTS MCGUIRE AFM, WRIGHISTOWN, N.J. THE VERIFICATION CRIFERION IS THE HEIDKE SKILL SCORE

SUBJECTIVE

PERSISTENCE

			OBSE	RVED							CBSE	RVED		
FORE- CASI	ı	2	3	4	5	101.1		FORE- CAST	1	2	3	4	. 5	TOTAL
i	0	0	3	C	6	9		1	O	1	ı	1	. 3	6
2	2	2	6	6	2	18		2	1	4	4	c	4	13
3	Ļ	6	8	7	6	28		3	1	4	12	9	6	32
•	1	5	9	18	23	56		4	2	3	6	31	26	68
5	1	2	5	32	368	408		5	1	3	8	22	366	400
JATOT	5	15	31	63	405	519		TOTAL	5	15	31	63	405	519
HEIDKE	SKIFI	. <b>5</b> COI	RE			0.42661		HEIDKE	SKILL	scor	lE			0.51495
CL IMA	toroci	ICAL E	EXPEC	rency	OF PE	RSISTENCE					GROUI	ING		
			OBSE	RVEN							OBSER	EVED		
FORE- CAST	1	s	3	4	5	TOTAL		FORE- CAST	ì	2	3	4	5	TOTAL
1	Ç	0	ı	0	ı	2		ì	0	0	2	o	3	5
2	2	1	1	2	0	6		2	2	1	2	3	1	9
3	1	7	15	11	13	47		3	0	2	6	3	10	21
4	i	5	9	18	23	56		4	1	6	12	30	55	104
5	1	?	5	12	368	408		5	2	6	9	27	336	330
JA101	5	15	31	63	405	519		TOTAL	5	15	31	63	405	519
HETOKE	SKILL	. SCOR	E		Ó	0.45204		HETDXE	SKILL	SCOR	E		C	). 36249
	LUND	CONT	I NGEN:	CY PA	OGNOSI	s		MJ	LT19L	E 019	CRIM:	INANT	ANALY:	515
		(	A328C	VŁD						0	SER\	/EO		
FORE- CAST	ı	2	3	4	5	TOTAL		FORE- CAST	ı	2	1	4	5	OTAL
1	o	2	4	9	56	71		ŧ	1	0	1	1	2	5
7	Ģ	0	2	ì	5	H		2	o	2	2	C	3	7
3	<b>λ</b> ͺ	9	14	15	9	49		3	2	đ	15	9	3	37
4	1	ì	9	; 7	38	65		4	1	3	8	25	23	60
5	2	3	3	21	297	326		5	1	2	5	78	314	410
TOTAL	5	15	31	43	405	51-9		TOTAL	5	15	31	53	405	519
HE ECKE	SKILL	SCORE	•		0.	.29167	1	HETOKE S	KILL '	SCORF			9.	.51 149

#### VERIFICATION OF 2 HOUR VISIBILITY FORECASTS MCGUIRE AFB, WRIGHTSTOWN, N.J. THE VERIFICATION CRITERION IS THE HEIDKE SKILL SCORE

			\$1518							-	BJEC 1			
FORE- CAST	1	2	ASERV 3	/ED	5	TOTAL		FORE- CAST	1	2	185ER\ 3	/EU 4	5	101AL
C#31	•		,	•	•	10140		0.251	•	•	•	•		,,,,,,
1	11	5	Q	0	0	16		1	6	5	3	0	C	14
2	2	6	6	1	0	15		2	3	2	7	1	2	15
3	1	4	37	10	6	58		3	2	7	41	14	9	73
.4	.0	0	22	71	11	54		4	2	0	20	25	31	78
5	c	1	15	22	431	469		5	ı	5	9	14	406	432
TOTAL	14	16	60	54	448	612		TUTAL	1,4	16	80	54	448	612
HE LOKE	SKILL	SCOR	ŧ		O	.55871		HELIKE	SKILL	SCORE	•		0	.50201
CL IMA	taruc ti	CAL- E	XP,EC F	ENCY	OF PER	SISTENCE				(	4008	ING		
			OBSER	<b>NEU</b>						(	IBSER	VED		
FORE-	-							FORE-					_	
CAST	1	2	3	4	5	TOTAL		CAST	1	2	3	4	5	TOTAL
- 1	.11	5	0	Q	C	16		1	12	7	4	0	0	23
2	0	4	2	1	0	1	•	?	1	1	i	v	e	3
. 3	3	é	<b>51</b>	10	6	66		3	0	6	32	15	9	62
<b>,4</b>	- 0	0	22	21	11	54		4	1	1	32	19	8	61
y 1.5	, Ģ	ı	,15	22	431	469		5	C	1	11	20	431	463
TOTAL	14	16	80	54	448	61.2		TOTAL	14	16	80	54	448	612
HE TOKE	SKILL	scue	r		(	.56610		HETDKE	SKILL	SCOR	F		o	. 52036
111 10114	.,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	•		•									
	٠٠						٠			•				
	LUNC				OGNOSI	\$		. <b>H</b>	ULTIP				ANALY	212
			GASÉR	AEn						,	DRSER	VED		
FORE.	ı	?	3	4	5	TOTAL		FORE- CAST	1	2	3	4	5	TOTAL
ı	G	0	0	?	0	C		1	12	9	7	0	0	28
.5	12	9	2	0	0	23		7	1	1	1	C	0	3
,	2	6	40	15	13	16		3	i	5	43	14	8	71
4	ů	¢	23	18	18	59		4	0	1	20	25	20	υ6
5	¢	1	15	21	417	454		5	0	0	9	15	420	444
1011	14	16	80	54	448	612		ISTAL	14	16	80	54	448	612
HEICKE	SKILL	SCOR	F		(	).48761		HF I PKE	SKILL	SCGR	ε		(	). 56835

# VERIFICATION OF 4 HOUR VISIBILITY FURECASTS MCGUIRE AFB, WRIGHTSTOWN, N.J. THE VERIFICATION CRITERION IS THE HEIDKE SKILL SCORE

TOTAL

FORE-CAST SUBJECTIVE

OBSERVED

TOTAL

PERSISTENCE

OBSERVED

FORE-

1	1		7	2	1	12	1	1	1	1	1	1	5
2	1	3	4	3	2	13	2	0	0	4	1	3	å
3	o	0	19	14	14	47	3	1	2	18		9	38
4	1	0	13	11	23	48	4	1	1	20	18	34	74
5	0	3	9	27	355	394	5	.0	3	9	29	348	389
TOTAL	3	7	52	57	395	514	TOTAL	3	7	52	57	395	514
HEIDKE	SKILL	SCOR	E		•	0.37989	HEIDKE	SKILL	SCOR	E		C	36764
CL IMAT	nL0610	AL E	XPECT	ENCY	OF PER	ISISTENCE				GROUP	ING		
į			OBSER	VED						OBSER			
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
1	0	0	2	o	1	3	. 1	ı	2	8	2	1	14
2	0	0	0	0	0	c	2	1	0	ı	0	3	5
3	2	4	28	19	16	69	3	1	2	18	14	13	48
4	1	0	13	11	23	48	4	0	0	10	10	13	33
5	0	3	9	27	355	394	5	0	3	15	31	365	414
TOTAL	3	7	52	57	395	514	TOTAL	3	7	52	57	395	514
HEIDKE	SKILL	SCOR	E		ď	0.40038	HEIDKE S	SKILL	SCOR	E		0	. 36067
	LUND (	CONTI	MGEN(	Y PR	NGNDSI:	5			E D15	.CR EM 1	MANT	ANALYS	:15
		ø	esex!	/ED					o	øser v	ED.		
FORE- CAST	i	,	3	4	5	TOTAL	FORE- CAST	ι	2	3	4	5	TOTAL
1	0	0	0	0	ŋ	0	1	2	4	γ	3	1	17
2	t	1	7	2	i	12	2	0	0	0	0	0	C
3	1	3	20	20	26	70	3	1	0	28	24	19	72
4	1	0	19	15	27	62	4	0	0	10	12	23	45
5	e	3	6	26	341	370	5	0	3	7	18	352	380
TOTAL	3	2	57	57	395	514	TOTAL	1	7	52	57	395	514
HEICKE	SKILL S	3 AN 32			٥	.36445	HETOKE S	KILI,	SCORF			n.	43024

# VERIFICATION OF 6 HOUR VISIBILITY FORFCASTS HOGGIRE AFB, WRIGHTSTOWN, N.J. THE VERIFICATION CRITERION IS THE HEIDKE SKILL SCORE

SUBJECTIVE

GSSERVED

PERSISTENCE

OBSERVED

FORE- CAST	1	2	3	4	5	TOTAL		FORE- CAST	1	2	3	4	5	TOTAL
1	0	1	3	3	5	1?		1	0	1	,	1	1	5
2	1	1	4	3	4	13		2	1	1	4	0	3	9
3	1	1	12	12	21	47		3	2	1	6	4	9	22
4	2	0	7	16	23	48		4	0	1	13	17	36	67
5	1	1	11	19	365	397		5	5	0	12	31	369	414
FOTAL	5	4	37	59	418	517		TOTAL	. 5	4	37	53	418	517
HETOKE S	SKILL	SCORE	Ē		9.	.39190		HEIOKF S	KILL	SCORE	!		0	. 34683
CL IHAT!	0L0G1C	AL E	XPECT!	ENCY	OF PER	SISTENCE				(	GROUP	ING		
		Ĺ.	ÜBŚER	VED						(	DÉSERY	ven		
CAST	ı	2	3	4	5	TOTAL		FCRE- CAST	1	2	3	4	5	ŢOTAL
1	o	1	1	0	1	3		1	c	1	2	3	5	11
2	Oʻ	0		0	0	0	•	2	1	0	2	1	8	12
3	2	2	17	15	25	61		3	2	2	13	16	30	63
4	2	0	8	19	27	56		. 4	1	0	11	12	28	52
, 5	1	1	11	19	365	397		5	i	1	9	21	347	379
TOTAL	5	4	37	43	418	517		TOTAL	5	4	37	53	418	517
HEÎDKE.	SKILL	SCOR!	E		,0	.42220		HEIDKE	SKILL	SCOR	E		C	. 32354
		CONT	INGEN	CY P	OGNOSI	\$	•	н	ULTIP	E DI	SCRIM	INANI	ANALY	<b>'S1S</b>
	17 . *		IBSER	VED	-					:	DUSER	VED		
FORE- CAST	ī	ž	3	4	5	TOTAL		FORE- CAST	1	2	3	4	5	TOTAL
i	0	0	0	G	0	0		ı	0	1	1	9	2	4
2	n	1	2	2	c	5		2	0	0	0	C	1	1
3	2	3	55	23	50	100		3	3	2	22	30	42	99
4	?	0	4	18	65	49		4	1	C	8	12	34	55
5	1	0	Ą	10	30,3	323		5	1	1	6	11	339	358
TOTAL	5	4	37	53	418	517		TOTAL	5	4	37	53	418	517
HCICKE	SKILL	SCOR	F		o	.31070		HEINKE	SKILL	SCOR	F		(	36683

# VERIFICATION OF 3 HOUR CEILING FORECASTS ATLANTIC CITY. N.J. APROURT THE VERIFICATION CRITERION IS THE VERNON SKILL SCORE

		UE#	SISTE	NOF						SUB	JECTI	VE		
			BSERV							OB	SERVE	D		
FORE- CAST	1	2	3	4	5	TOTAL		FORE- CAST	ı	2	3	4	5	TOTAL
1	2	6	3	0	3	14		ı	0	2	0	0	0	2
	0	16	9	2	4	31		2	3	16	7	2	6	34
2	1	3	11	8	3	26		3	0	11	13	5	9	38
3	1	2	5	12	11	31		4	0	1	6	17	19	43
	1	5	4	16	553	579		5	2	2	6	14	540	564
5 TOTAL	5	32	32		574	681		TOTAL	5	3?	37	38	574	681
VERNON S	KILL	SCORE	Ē		0.	.66371		VERNON S	SKTLL	SCORE	i		0	. 65499
CLIMATO	)L0G1(	AL E	XPECT	ENCY	OF PER	SISTENCE					ROUP			
		,	ORSER	VED						C	BSER	ED		
FORE-	3	2	3	4	5	TOTAL		FORE- CAST	1	2	3	4	5	TOTAL
1	2	3	0	0	1	6 .		1	ı	4	2	0	1	8
2	0	15	9	0	4	28	•	2	1	15	13	2	5	36
3	1	7	14	10	5	37		3	0	5	7	6	9	27
4	ı	2	5	12	11	31		4	1	3	7	10	8	29
5	1	5	4	16	553	579		5	2	5	3	20	551	581
TOTAL	5	32	32	38	574	681		TOTAL	5	32	32	38	574	681
VERNON	SKILI	. SCOI	RE		1	). 6769B		VERNON	SKILL	SCOR	E		•	0.62336
	LUNE	CONT	I I NGEI DBSEI		ROGNOS1	S		,	WLTIP		SCR IM JASER		ANALY	1515
FORE- CAST	1	2			5	TOTAL		FORE-	1	2	3	4	5	TOTAL
		0	0	0	n	0		ι	1	4	2	c	1	8
1	0					45		7	1	17	7	1	4	30
7	7					138		3	1	5	14	a	7	36
3	ž					0		4	1	2	6	12	12	33
4	,					448		5	1	4	3	16	550	574
5 101 AL	1 =					681		TOTAL	5	32	32	38	574	146
VERNON	i SKIL	נ גננ	)RE			0.46555	-	VERNIV	5+1L	L SCO	RF			0.47623

# VERIFICATION OF 5 HOUR CRILING FORECASTS ATLANTIC CITY, N.J. AIRPORT THE VERIFICATION CRITERION IS THE VERN(IN SKILL SCORE

PERSISTENCE

SUNJECTIVE

		P C 1	()131	ENCE						•	,			
		ŧ	BBSER	ven						(	はるといい	/FD		
FORE- CAST	1	2	3	4	• 5	TOTAL		FORE- CAST	ı	2	3	4	5	TGTAL
1	0	1	2	2	9	14		ı	9	ı	0	0	0	t
2	1	12	6	5	6	30		2	3	11	b	4	3	29
3	1	3	5	10	5	24		3	1	8	8	13	10	40
4	ı	4	6	11	9	31		4	0	0	6	15	18	42
5	2	e	5	25	520	552		5	ì	0	2	14	518	539
FOTAL	5	20	24	53	549	651		TOTAL	5	20	24	53	549	651
VERNCH	SKILL	SCOR	Ę		0	.51266		VERNON !	SKILL	SCOR	Ē		O	. 64745
CLIMAT	01.061	CAL E	XPĒCT	ENCY	OF PER	SISTENC					GRAUP	ING		
			UHSFR	VED						1	DBSER	VED		
FORE- CAST	t	2	3	4	5	TOTAL		FORE- CAST	1	2	3	4	5	TOTAL
ì	0	. 1	1	0	4	6		1	0	ı	0	5	6	9
2	-1	. ģ	4	ż	3	19	•	2	0	11	10	b	5	32
3.	1	6	8	15	13	43		3	2	6	5	G	11	33
4	ı	4	6	1 Î	9	31		4	1	2	4	12	10	29
5	ź	0	5	25	520	552		5	2	0	5	24	517	548
TOTAL	5	20	24	53	549	651		TOTAL	5	20	24	53	549	651
VERNON	SKILL	scox	E		Ó	-53832		-VERNON	SKILL	SCCR	E		o	-52394
			•											
	rono				genes I:	5		M	LIP		JBSER1		ANALY	515
FORE-	ι		JBSER' 3	γει· 4	5	TOTAL		FORE- CAST	1	,	3	4	5	FOTAL
£.	٥	o	G	Ú	c	v		ı	c	1	2	2	7	14
?	3	20	22	34	94	1/3		?	0	12	6	7	1	26
, 3	, c	0	0	0	0	0		3	}	4	8	te		28
4	ņ	0	i	4	37	47		4	ì	1	4	11	21	38
5		0	1	15	418	436		5			4	23	514	545
fill AL	5	20	24		547	651		TOTAL	5	20	24		549	651
<b>∀Е</b> ни≈ч ч	SKILL	SCOA	Ē		o	. 3) 056		veknos i	ik][L	SCCR	i		o	.42 146

## VERIFICATION OF 7 HOW CEILING FORECASTS ATLANTIC CITY, N.J. AIRPORT THE VERIFICATION CRITCRION IS THE VERNON SKILL SCORE

SUBJECTIVE

OBSERVED

PERSISTENCE .

OBSERVED

10

101AL

VERNON SKILL SCORE

62 427

676

0.25616

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		,	ORVER	A 1-11						,	NW2FM.	A E O		
FORE- CAST	1	2	3	4	5	TOTAL		FORE- CAST	1	2	3	4	5	TOTAL
ì	O	1	2	2	10	15		1	c	ı	0	1	ı	3
2	1	11	7	3	11	33		5	3	10	12	2	6	33
3	0	4	5	8	e	25		3	0	8	9	10	10	37
4	2	2	9	10	11	34		4	0	0	11	17	22	50
5	5	3	.5	28	518	569		5	5	2	6	21	519	553
TOTAL	9	21	38	51	558	676		TOTAL	8	21	38	51	558	676
VERNON	SKILL	SCOR	F		1	0.40543		VERNON	SKILL	SCOR	E		C	3.55856
CLIPAI	1061				OF PEI	RSTSTENCE					ROUP			
		ε	BSER	/69						C	BSERI	/ED		
FORE- CAST	:	2	3	4	•	TOTAL		FORE- CAST	1	2	3	4	5	TOTAL
ı	ũ	1	S	Q	4	1		1	0	1	0	1	2	4
2	1	10	7	3	5	56	<i>.</i>	5	1	11	9	8	10	39
3	c	5	5	10	ZC	4C		3	1	5	10	7	9	32
4	2	2	9	10	1.1	34		4	0	1	7	9	23	40
5	5	3	15	28	516	569		5	6	3	12	26	514	561
TOTAL	8	21	38	51	558	676		TGTAL	8	21	38	51	558	676
VEHNON	SKILL	SCORE	•		ć	3.42662		VERNON	SKILL	SCORE	į		0	.46277
	LUND	CUNT	INGFN	CY PR	lOGNOS	15		•	WLTIPI	LE 01:	SCRIM	INANT	ANALY	sis
		(	ORSER	VED						Ć	DBSER	VED		
FORE- CAST	1	2	3	4	5	TOTAL		FORE- CAST	1	2	3	4	5	TOTAL
1	c	3	5	3	57	68		1	c	0	o	0	t	1
3	1	13	13	12	31	70		2	0	9	10	11	2	32
٤	1	3	11	12	22	49		3	2	8	?	7	15	41

TGTAL

YERMON SKILL SCORE

0.47619

#### VERIFICATION OF 3 HOUR VISIBILITY FORECASIS ATLANTIC CITY, N.J. AIRPORT THE VERIFICATION CRITERION IS THE VERNON SKILL SCORE

		PEI	ISISTE	NCE						<b>\$</b> ប	BJECT	341		
		(	)BSER	150						0	RZEKI	/ED		
FORE- CASI	1	2	3	4	5	TOTAL		FORÈ~ CAST	1	2	3	4	5	TOTAL
1	7	2	2	3	10	24		1	1	0	1	4	0	6
2	٥	8	6	3	9	26		2	5	6	4	ŷ	7	?2
3 .	1	3	4.	3	6	17		3	4	3	8	7	19	41
4	2	1	0	2	8	13		4	· 2	4	3	7	18	34
5	3	3	10	24	579	619		5	ı	4	6	17	568	596
TGTAL	13	17	22	35	612	649		TOTAL	13	17	2?	35	613	699
NONBBY	SKILL	SCOR	E		0	<b>.</b> 47001		VERNON	SKILI.	SCORE			(	0.48493
CLIMAT	01.0610	AL E	KPECTI	ENCY	OF PER	SISTENCE				G	RQUP I	ING		
ů.		(	DRSERY	/ED						G	BSERV	/ED		
FORT~ CAST	1	2	3	4	5	TOTAL		FORE- CAST	i	2	3	4	5	TOTAL
7	5	3	0	3	1	12		1	7	2	3	3	11	26
2	2	5,	7	1	12	27	•	2	0	0	o	2	2	4
- 3	1	5	ţ	5	11	23		3	1	9	6	2	14	32
4	ı	0.	5	į	4	10		, 4	1	1	3	3	9	1.7
5	5.	4	10,	25	584	627		5	1,	5	10	25	576	620
TOTAL	13	-17	22	35	612	699		TOTAL	13	17	25	35	612	699
* 7. 3														
VERNON	SŘILL	SCORI	E		0	.46140		VERNON	SKILL	SCORE			C	40849
*														
	Casho				CONUSI	s	•	,	4)L Ì [P				ANAL	/S18
			. 3*	4, U.						0	BSER	VED		
C.	1	2	3	4	5	10TAL		FORE-	t	2	3	4	5	TOTAL
1		÷	7	6	18	44		1	8	4	3	5	13	33
5	r	4	1	1	4	10		2	0	3	3	0	6	12
<b>;</b>	3	4	5	9	21	42		3	?	6	5	6	9	28
24		1	\$	4	1.5	146		4	e	0	2	2	11	15
•	1	٨	;	10	446	463		ς	3	*	9	52	573	411
\U1VE	13	17	<b>&gt;</b> 2	35	617	699		YOFAL	13	17	2.5	35	612	6.39
VERNON	skill	scak	t-		0	. 10277		VERMAN	WILL	SCORF			(	0.45451

## VERIFICATION OF 5 HOUR VISIBILITY FORECASTS ATLANTIC CITY, N.J. AIRPORT THE VERIFICATION CRITERION IS THE VERNON SKILL SCORE

			S I S T E B S E R V								#ZEKA			
FORE- CAST	ı	2	3	4	5	IOFAL		ORE- AST	1	2	3	4	5	TUTAL
1	a	o	1-	2	19	22		1	0	0	0	0	1	1
2	1	3	7	?	13	26		2	3	3	2	3	2	13
٤	ı	0	3	2	10	16		3	1	2	9	5	13	30
4	0	0	1	2	10	13		4	1	0	4	5	12	22
5	4	4	7	14	557	586		5	1	2	4	9	581	597
FOTAL	6	7	19	55	609	663	r	OTAL	· 6	7	19	52	609	663
VĒRNON S	SKILL	SCORE			0	· 25a·)9	٧	ERNON S	SKILL :	SCORE			0.	52433
CI THAT	AL 0617	:Al F)	( <b>P</b> FCT)	ENC.Y	OF PER	SISTENCE					GROUP	ING		
0	0.00.		)BSFR							(	OHSER	VED		
FORE-							!	FORE-						
CAST	1	2	3	4	5	TOTAL	(	CAST	1	2	3	4	5	TOTAL
1	0	1	1	2	7	11		1	0	v	4	2	11	17
2	0	2	7	2	5	16	٠.	2	C	0	, 3	2	•	14
3	1	0	1	3	17	22		ź	1	3	5	3	21	33
4	1	0	2	1	16	20		4	1	0	0	1		10
5	4	4	8	14	564	594		5	4	4	7	14	560	589
TOTAL	6 .	7	19	55	609	663		TOTAL	6	7	19	22	409	663
VERNON	SKILL	SCOR	E		(	0.25750		VERNON	SKILL	SCOR	E		0	. 22948
	LUND	CONT	INGEN	ICY PR	IOGNOS	ıs	,	,	WLTIPI	.E 01	SCR I H	INANI	T ANALY	\$15
			ORSER	VED							OBSER	VED		
FORE- CAST	1	2	3	4	<b>,</b>	TOTAL		FORE- CAST	ı	2	3	4	5	TOTAL
i	i	1	٩,	4	30	41		1	1	2	7	3	25	38
2	. 0	2	3	0	2	7		2	0	1	2	1	6	10
3	1	0	3	3	5	12		3	0	0	1	2	•	12
4	2	1	2	3	26	. 34		4	0	0	3.	5	53	31
5	2	3	6	12	546	569		5	5	4	۵	11	546	572
FOTAL	6	7	19	22	609	663		TOTAL	•	7	19	22	409	463
VERNON	SKILL	SCOR	E		•	0.24754		VERNON	SKILL	SCOP	Æ		ď	.72212

# VERIFICATION OF 7 HOUR VISIBILITY FORECASTS ATLANTIC CITY, N.J. AIRPORT THE VERIFICATION CRITERION IS THE VERNON SKILL SCORE

		ρĘ	RSISI	ENCE						S	NBJEC	3411		
			OASEF	VED							OBSER	VED		
FORE- CAST	1	?	3	4	5	TOTAL		FORE- CAST	ı	2	3	4	5	TOTAL
ı	c	o	1	G	50	21	.*	1	0	0	0	0	1	1
2	ì	3	5	1	15	25		2	2	2	ı	0	7	12
3	2	ı	ŧ	0	12	16		3	1	2	9	2	13	27
4	Q	0	0	0	14	14		4	1	3	1	ź	15	22
5	7	3	12	13	546	581		5	6	0	8	10	571	595
TOTAL	10	7	19	14	607	657		TOTAL	10	7	19	14	607	657
VERNON	SKILL	SCOR	IE.		(	0.15042		VERNON	SKILL	SCOR	ε		(	37056
CI. IMAT	01.0610	Ai F	XPFC T	ENCY	OF DES	SISTENCE				,	.0000	•••		
			OBSER		/	or sit not					GROUP DRSER'			
FORE-								FORE-		•	),,9EW	VEU		
CAST	1	Ź	3	4	5	TOTAL		CAST	1	2	3	4	5	TOTAL
1	.0	1	1	0	8	10		1	0	0	Ź	1	17	20
2	2	2	3	ı	7	15	•	2.	0	2	2	0	14	18
3	-1	0	ı	0	9	11		3	4	2	2	0	21	29
. 4	C	1	0	0	50	21		4	0	0	c	1	6	7
5	7	3	14	13	563	600		5	6	3	13	12	549	583
TOTAL	10	7	. <u>1</u> 9	14	.607	657		TGTAL	10	7	19	14	607	657
VERNON	SKILL	SCORI	E		0	•19305		VERNON	SKILL	SCORE			0	. 14724
	•													
	LUND	CONT	INGENI	CY PR	OGNOSI	S		M	ULTIPL	E 015	CRIM	INANT	ANALY	S 1 S
		(	BSER	VED						(	UUSER	VED		
FORE: CAST	1	2	3	4	5	TOTAL		FORE~ CAST	1	2	3	4	5	TOTAL
1	2	3	7	2	62	76		1	ı	ż	ŧ	0	3	7
2	3	?	6	5	117	133		,	C	1	3	0	11	15
3	1	0	3	0	19	23		3	ı	0	4	o	6	11
4	1	1	1	ι	26	30		4	o	ı	3	3	24	31
5	3	1	7	6	363	395		5	8	3	8	11	563	593
70 TAL	10	7	+ 3	14	607	657		TOTAL	10	7	19	14	607	657

VERNON SKILL SCORE

0.27326

0.09288

VERNITY SKILL SCORE

# VERIFICATION OF 2 HOUR CELLING FORECASTS MESTINER AFB. CHICGPEL. MASS. THE VERIFICATION CRITERION IS THE VERNON SKILL SCORE

		PERS	ISTE	AC E					\$U	12328	146		
		08	SERVI	EO					0	BSERV	ED		
FORE-	1	2	3	4	5	TOTAL	FORE- CAST	ı	2	3	4	5	TGTAL
			0	2	2	15	ı	3	2	0	1	1	7
ì	6	3	5	0	0	18	2	11	10	8	0	1	30
2	5	8	27	1	3	44	3	0	8	24	9	3	44
3	Q -	7	6	44	35	38	4	0	3	7	44	22	76
4	Ċ	3	5	18	455	485	5	3	į	4	17	463	473
5 TOTAL	4 17	3 24	43	71	495	650	TOTAL	17	24	43	7 i	495	650
VERNON	SKILL	SCORE	1		ā	.69596	VERNOH	SKILL	SCOR	E		o	.73021
CI TMAT	າງ ລູດ ເຄ	CAL S	x P E C T	FNCY	OF PER	SISTENCE				GROUF	• ING		
CLINI	02001		QBSER							OBSE	RVED		
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	1	2	3	4	. 5	TOTAL
				2	2	16 .	1	9	3	Q	2	2	16
1	9	3	0	v		·-	. 2	4	11	6	C	0	21
2	5	11	26	4	_	38	3	1	٥	29		3	50
3	0	5	6			86	4	0	I	5	42	2 29	77
4	9		4			487	5	3	0	3	19	461	486
5 TOTAL	3 17	0 24	43			650	TOTAL	17	24	43	7	1 495	650
VERNCA	ı SKILI	L SCO	RE			0.75440	VERNO	N SKIL	L SCO	RE			0.74737
	Nf	י כמעו	FINGE	NCY P	ROGNOS			MILTI		[SCRI	MINA	NT AMAL	,YS ! S
	20130	, 50 .		RVED						OBSE	RVED		
FURE- CAST	1	s			, 5	TOTAL	FORE- CAST	ı	2	: 3	, ,	, 5	TOTAL
ı	8	3	o	. 3	2	15	t	10	4	, (	)	2 '	14
2.	5				) 0	18	5	3	14	12	3	о.	39
3	0				7 3	44	3	1	. 4		9	7	33
4	0			5 44		88	4	c	) ;	2 1	8 4	2 11	63
9	4			5 l	_	485	5	:	3 (	)	3 2	0 480	506
TOTAL	17						JATOT		7 2	4	3 7	1) 495	650
	N SKIL	L SCC	)ĸE			0.69594	YERNE	ON SKI	LL SC	ORE			0.17208

## VERIFICATION OF 4 HOUR CEILING FORECASTS WESTOVER AFR, CHICOPEE, MASS. THE VERIFICATION CRITERION IS THE VERNON SKILL SCORE

			RSIST							187EC			
		1	OBSER	AEU					(	DRSER	VED		
FURE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	1	5	3	4	5	TOTAL
1	3	2	2	2	7	16	t	1	1	0	Q	2	4
2	1	9	7	6	2	25	2	3	6	4	4	3	20
3	1	5	24	8	10	48	3	2	10	21	12	3	48
4	t	4	9	36	29	79	4	0	3	15	39	36	93
5	1	1	9	27	449	487	5	1	1	11	24	453	490
TOTAL	7	21	51	79	497	655	TOTAL	7	21	51	79	497	655
VERNGN	SKILL	SCOR	E		o	.57885	VERNON 4	KILL	SCOR	E		0	. 60036
CLIPAT	OLOG 1	CAL E	XPECI	FNCY	OF PER	SISTENCE			ı	GROUP	ING		
			UHSER	ñŁÛ					(	OBSER	VED		
FORE- CAST	i	Z	3	4	5	TOTAL	FORE- CASY	ı	2	3	4	5	TOTAL
i	3	9	0	2	Q	5	1	3	3	4	3	8	21
2	1	7	1	3	0	12	. 2	2	tt	8	4	2	27
3	1	9	32	13	19	72	3	į	6	25	15	9	56
4	1	4	9	36	29	79	4	9	0	7	2'	36	71
5	1	ı	y	27	449	487	5	ı	1	7	29	442	480
TOTAL	7	21	51	79	497	<b>\\</b> 55	TOTAL	7	21	51	79	497	655
YERNGY :	SKILL	SCORI	Ē		0	.60843	VERNON S	KILL	SCORI	Ę		0.	.58493
	LUND	CONT	INGEN	CY PR	ΩGH <b>OS</b> 1:	s	M	ILTIP!	LE 01:	SCR IM	INANT	ANALY	515
		1	DRSER	VED					,	DRSER	03v		
FORE- CAST	1	2	3	\$	5	TOYAL	FORE- CAST	1	2	3	4	5	TOTAL
1	3	2	2	2	7	16	ı	5	4	5	2	4	20
2 '	ı	9	7	6	\$	2,	2	1	8	12	3	2	26
3	7	9	33	44	39	127	3	0	4	50	15	5	44
		1	3	4	58	66	4	0	4	5	33	22	64
4	C	•											
4 5	G	c	6	23	391	42:	5	ı	4	9	26	464	501

VERHON SKILL SCORE

0.63458

0.47148

VERNON SKILL SCORE

#### VERIFICATION OF 6 HOUR CEILING FORECASTS WESTOVER AFB. CHICOPEE. MASS. THE VERIFICATION CRITERION IS THE VERNON SKILL SCORE

SUBJECTIVE

PERSISTENCE

		-	K3131	EINCE						30	J17JEC			
		1	DRSER	VED						ε	JUSER	AED	•	
FORE- CAST	ì	2	3	4	5	TOTAL		RE- ST	ı	2	3	4	5	TOTAL
1	0	1	2	4	•	16		1	1	0	1	0	1	3
2	2	2	7	8	6	25		2	2	6	10	1	1	. 20
3	2	5	19	15	6	47		3	0	5	20	11	3	39
4	1	7	16	31	32	87		4	1	3	13	51	.39	107
5	õ	3	5	46	440	494		5	ı	4	5	41	449	500
TOTAL	5	18	49	104	493	669	to	TAL	. 2	18	49	104	493	449
VÉRNON	SKILL	SCOR	E		0	.45434	VE	RMON	SKILL	SCOR	E		(	). 5 <b>948</b> 4
CĻIMAT	OLOG 1	CAL E	XPECT	ENCY	DF FER	SISTENCE				•	GROUP	ING		
			OBSER	VED						. 1	OBSER	VED		
FORE- CAST	1	2	3	4	5	TOTAL		RE-	1	2	3	4	5	TOTAL
ı	0	0	9	1	0	1		1	0	1	4	0	3	
2	2	2	6	3	3	16	•	2	2	2		3		23
3	2	6	21	21	10	60		3	2	6	23	24	•	64
4	1	7	16	31	32	67		4	. 0	4	6	31	29	70
5	9	3	•	48	448	505		5	1	5	•	46	444	504
TOTAL	5	18	49	104	493	643	TC	TA.	\$	18	49	104	493	669
VERNON	SKILL	SCOR	E		, <b>o</b>	. 5103 <del>7</del>	VE	RNON	SKILL	SCOR	E		•	2.49085
	LUND				DGN051	S		M	ULTIPL				AMALY	'S1S
FORE-			DBSER	AED			FO	RE-			DBSER			
CAST	1	2	3	4	5	TOTAL	CA	ST	1	5	3	4	5	TOTAL
1	2	ı	4	3	4	14		1	1	ı	2	1	1	•
2	2	5	26	10	7	50		2	5	´ 2	10	7	3	24
3	t	8	15	49	34	111		3	1	•	26	22	10	67
4	0	1	0	15	73	89		4	1	3	7	34	23	68
5	٥	3	4	27	371	405		5	0	4	4	40	42.	504
TUTAL	5	18	49	104	493	669	to	TAL	5	18	49	104	493	449
VERNON	SKILL	SCOR	E		0	.41643	٧E	RYON	SKILL	SCOR	E		c	.57342

# VERIFICATION OF 2 HOUR VISIBILITY FORECASTS WESTOVER AFB, CHICOPEE, MASS, THE VERIFICATION CRITERION IS THE VERNON SKILL SCORE

		PER	SISTE	NCE					St	BJECT	IVE		
		O	BSERV	/ED					C	BSERV	/ED		
FORE- CAST	1	2	3	4	5	TOTAL	FORE~ Cast	1	2	3	4	5	TOTAL
ı	12	2	2	2	0	18	1	4	2	ı	0	0	7
2	_2	5	7	ı	0	15	2	10	3	9	0	0	22
3	8	4	20	5	4	41	3	10	9	32	12	8	71
4	1	1	14	15	14	45	4	0	0	7	24	26	57
5	1	2	11	27	522	563	5	0	0	5	14	506	525
TOTAL	24	14	54	50	540	682	TOTAL	24	14	54	50	540	682
VERNON	SKILL	SCORE	<b>!</b>		0.	68209	VERNON	SKILL	SCORE	ŧ		0.	72206
CLIMA)	LOFOCI	CAL E	x <b>PE</b> CT	ENCY	OF PER	SISTENCE			ı	GRPJP	ING		
		(	OBSER	VED						OBSER	VED		
FORE- CAST	1	2	3	4	5	TOTAL	FCRE- CAST	1	2	3	4	5	TOTAL
, 1	5	1	Z	1	0	6.	1	17	4	4	2	0	27
2	8	4	6	1	0,	19	2	1	3	7	0	0	11
3	9	6	21	6	4	46	3	5	5	28	U	7	56
4	1	ı	14	15	14	45	4	1	2	£	14	15	40
5	1	. 2	11	27	522	563	5	G	ð	7	23	518	548
TOTAL	24	14.	54	50	540	665	TOTAL	24	14	54	50	540	682
VERNON	SKILL	SCOR	E		o	. 65984	YERNON	SKILE	SCOR	E		o	. 73490
	LUND	CONT	IŅĢEN	CY PR	OSNOSI	S		MULTEP	LE DI	SCRIM	INAN	. ANALY	515
			OBSER	VED						ORSER	VED		
FORE- CAST	ı	2	3	4	5	**************************************	FORE- CAST	1	2	3	•	5	TOTAL
ı	15	4	3	2	0	24	t	16	4	6	2	G	28
2	9	10	50	46	141	256	2	5	4	10	1	0	50
3	c	0	v	0	0	0	3	3	5	79	11	5	53
4	0	o	0	υ	0	C	4	0	1	4	17	12	34
. 5	c	0	1	2	399	402	5	0	0	5	19	523	547
TOTAL	24	14	54	50	540	682	TGTAL	24	14	54	50	540	682
VERNON	SKILL	SCGR	E		c	.36468	VERHON	SKILL	SCOR	E		c	.17185

# VERIFICATION OF 4 HOUR VISIBILITY FORECASTS MESTOVER AFB, CHICOPEE, MASS. THE VERIFICATION CRITERION IS THE VERNON SKILL SCORE

SUBJECTIVE

		PER	SISTE	NCE						32611			
		0	BSERV	ED					O1	BSERVE	0		
FORE- CAST	ı	2	3	4	5	TOTAL	FORE- CAST	1	2	3	•	5	TOTAL
			10	2	4	23	1	3	1	1	c	0	5
1	5	2	5	6	4	12	?	1	1	?	1	4	9
2	1	2		7	9	46	3	4	7	23	7	11	52
3	2	6	22	12	18	46	4	3	3	23	15	26	70 `
4	2	2	12		508	545	5	1	ı	12	20	502	536
5	5	1	12	22	543	672	TOTAL	12	13	61	43	543	672
TOTAL	12	13	61	43	772	•••							
VERNON :	SKILL	SCOR	ŧ		0	.56413	VERNON .	SKILL	SCORI	E		0.	.55547
CL INAT	DL0G1C	AL E	KPECTI	ENCY	OF PER	SISTENCE			(	ROUPI	NG		
			DBSER						. (	OBSER1	EO		
EURE- CAST	i	2	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
	5	1	2	0	1	9 .	1	5	4	13	1	•	29
1	0	2	3	0	2	7	. 2	2	0	•	1	2	13
2	3	6	24	10	10	53	3	2	4	14	4	16	44
3	2	3	20	11	22	56	4	1	3	10	13	15	42
4	2	1	12	22	508	545	5	2	z	14	22	504	544
5 TOTAL	12	13	61	43	543	672	TOTAL	12	13	61	43	543	<b>672</b> .
VERNON		scol	RE		•	3.57785	VERNON			IĘ.		q	. 52565
						•		wit Ti		(SCRI)	1 INAN	Z ANAL'	<b>r\$1</b> 5
	LUN	CON			ROGNOS	15		,		DOSE			
FORE-			0826	RVED			FGHE- CAST	1	z	3	4	<b>5</b>	TOTAL
CAST	1	2	? 3	<b>)</b>	5	TOTAL	CRST	•	_				
1	6		. 15	5 :	2 8	35	1	5	5	10	2		26
2	0		2 17	7	4 5	78	2	O	1	7	1	3	12
3	5		, 20		5 139	212	3	6	. 4	29			67
4	0				0 0	o	4	1		. 5	,	7 26	41
5	1				2 391	397	5	(	) 1	10	1		524
TOTAL	12		3 6	-	3 543	672	TOTAL	. 1	2 1	3 61	٠. *	3 543	<b>615</b>
VERNO	n SKII	LL SC	ORE			0.36777	VERN	ON SKI	LL SC	ORE			0.57974

# VERIFICATION OF 6 HOUR VISIBILITY FORECASTS WESTOVER AFA: CHICOPEE, MASS. THE VERIFICATION CRITERION IS THE VERNON SKILL SCORE

			R\$151							VBJEC			
			CASEA	VED						08368	YED		
FORE- CAST	ı	\$	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	FOTAL
1	. 2	2	2	3	14	23	1	1	ı	1	0	o	3
. 42	1	0	3	Ź	6	12	2	0	1	7	2	4	14
3	. 3	3	14	, 9	13	42	3	3	3	11	10	4	31
4	2	4	7	12	17	42	4	•	5	7	13	23	52
<i>,</i> 5	1	2	14	31	472	520	5	1	i	14	32	491	539
TUTAL	9	11	40	57	522	639	TOTAL	. 9	11	-40	57	522	639
VÊRNON		. 3,008	Ε		(	D. 37864	VERNDŘ	SKILL	. SCOR	E		(	0.47436
CLIMAT	00.061	CAL E	KPECTI	ENCA	OF PER	SISTENCE			(	GROUP	ING		
		-	DBSER			ŕ			~ (	DRSERI	VED		
FORE- CAST	1	2	3	4	5	ÍDIAL	FORE- CAST	1	2.	3	4	5	TOTAL
1	2	2	2	2	2	10	1	2	3	9	1	9	24
2	1	0	3.	0	4	8	, 2	1	1	3	5	13	23
3	5	4	15	15	10	49	3	5	4	9	12	22	49
4	.0	3	6	9	34	52	4	2	ı	4	19	36	53
. , 5	ļ	5,	14	31	472	52 <b>ç</b>	5	2	2	15	29	442	490
TÖTAL	-Ģ	-11	40	511	322	639	TETAL	9	11	40	57	522	639
- VERNON	SKILL	SCORI	E -		0	.44817	VERNON	SKILL	SCORE	ŧ		.0	•33152
٠.			INGEN OBSER		rosnos1			W)LTIP		SCR IM DOSER		T ANALY	<b>7515</b>
fëre-					*		FORE-			<i>3</i> 135~	•••		
CÁSI	1	2	3	4	5	FOTAL	CAST	1	5	3	4	5	TOTAL
i _	3	2	8	6	10	29	£	2	2	2	2	10	18
2	3	3	5	Ł	3C	49	2	3	2	5	4	5	19
3	2	5	25	36	181	249	3	3	3	17	10	34	67
, 4	1	1	0	3	13	18	4	3	2	0	15	28	53
5	G	0	2	. 4	2118	294	5	3	2	10	26	445	483
TOTAL	3	Ħ	40	57	522	639	FCTAL	9	tt	40	57	522	639
VERNCN	SKILL	SCOR	E		o	.21294	VERNOY	S×ILL	SCORI	E		a	.40433

## VERIFICATION OF 3 HOUR CEILING FORECASTS WASHINGTON NATIONAL AIRPORT THE VERIFICATION CRETERION IS THE VERNON SKILL SCORE

SUBJECTIVE

PERSISTENCE

		•	BSER	/ED						(	)ASERI	/E0		
FORE- CAST	ı	2	3	4	ş	TOPAL		FORE- CAST	ı	2	3	4	5	TOTAL
1	1	0	0	G	1	2		1	0	0	0	0	٥	0
2	0	1	3	1	2	7		2	0	0	3	0	2	5
3	0	0	10	2	0	12		3	0	1	12	9	\$	25
4	0	0	6	13	9	28		4	0	0	4	13	-14	33
5	ŧ	1.	Ś	16	471	492		5	2	1	3	10	462	478
TOTAL	2	2	22	32	463	541		FOTAL	1 2	S	22	32	483	541
VERNON S	SKILL :	SCORE	٠.		0	.61472		VERNON S	KILL	SCOAI	Ē		0.	.50026
CLIHAT	01 0G 1C	AL E	XPECT	ENCY	OF PER	SISTENCE	•				GRAUP	ING		
			ÖÐSER	VED						,	OBSER	VED	•	
FORE- CAST	1	2	Ś	4	5	TOTAL		FORE- CAST	ı	2	ş	4	5	TOTAL
1	Q	٥	Ò	0	G	0	=	1	1	ó	0	0	0	1
2	:	•	3	0	2	6	•	2	0	Ĭ	-4	1	0	•
3	0	4	10	3	1	15		3	0	0	12	4	•	20
4	0	0	•	13	•	26		4	0	0	3	9	•	20
5	1	1	3	16	471	492		5	_1	3	3	is	471	494
TOTAL	2	-2	22	32	483	541		TOTAĻ	2	\$	22	32	483	541
VERNON	SKILL	SCOR	É		o	-60#83		VERNON	SKILL	SCOA	E		0	.42315
	LUND	CONT		CY PZ	IRGNOS (	5		*	ULTIPI	.E 01	SÇRIM	INANI	AHALY	<b>S</b> IS
			ORSER	VED							DBSER	VED		
FORE- CAST	1	2	•	4	5	TOTAL		FORE- CAST	ı	2	3	4	5	TOTAL
1	0	c	0	G	0	0		1	0	o	0	0	٥	0
2	ı	1	3	1	3	9		2	1	0	\$	1	2	•
3	G	0	15	15	9	40		3	0	1	14	?	3	25
4	0	1	2	4	66	78		4	v	1	4	•	7	20
5	1	0	1	. 7	405	414		5	1	9	2	16	471	490
TUTAL	2	7	22	32	483	541		TOTAL	S	\$	55	32	483	54 t
VERNON	SKILL	SCORI	ε		o	.46074		VERNON :	SKILL	SCRR	£		o	.62194

# VERIFICATION OF 5 HOUR CEILING FORECASTS MASHINGTON NATIONAL AIRPORT THE VERIFICATION CRITERION 13-THE VERNON SKILL SCORE

			RSIST								DJLEC			
		•	DBSER	VEO						1	DBSF4	VED		
FURE- CAST	1	2	3	4	5	TOTAL		* FORE- CAST	ı	ż	3	4	5	TOTAL
1	0	0	0	ø	2	2		1	c	9	0	0	0	0
2	0	1	3	2	1	7		2	0	0	3	2	0	5
3	0	0	5	6	2	13		3	0	ı	8	7	3	19
4	0	i	6	10	10	27		4	0	1	6	11	21	39
3	0	3	4	14	474	495		5	0	3	1	12	465	481
TOTAL	a	5	15	32	489	544		TOTAL	G	5	18	32	489	544
vernon :	SKILL	SCOR	E		c	3.4 <b>9</b> 695		VERNON	SKILL	SCOR	E		C	0.54415
CLIMATO	ologic	AL EX	PECT	ENCY	OF PEN	SISTENCE				G	ROUPI	ING		
		Ċ	BSER	VEO						0	BSERV	/FD		
FORE- CAST	1	2	3	4	5	TOTAL		FORE- CAST	ı	z	3	4	5	TOTAL
1	Ċ	o	0	0	0	c		1	C	0	0	o	0	0
ž	0	0	1	1	t	3	٠.	2	0	1	4	3	4	12
3	ŋ	1	4	2	3	16		3	c	G	7	10	5	22
4	0	1	9	15	11	36		4	0	ı	4	7	18	30
5	c	3	4	14	474	495		5	0	3	3	12	462	480 '
TOTAL	o	5	is	22	489	544		TOTAL	G	5	18	32	489	544
VERNON 1	SKILL	SCORE			o	•50342		VERNON	SKILL	SCORE	Ē		0	.47447
	LUND (	CCNE I	NGENO	CY PRI	NGNOSI!	s		Me	, ILTIPL	E CIS	CRIMI	, nant	ANALY	\$ <b>!</b> >
		Q	BSEA	/ED						0	BSERV	ED		
FORE- CAST	ı	s	3	4	5	TOTAL		FORE- CAST	1	2	3	4	5	INTAL
ı	0	o	0	6	С	9		ı	0	0	0	0	0	5
2	3	1	3	2	3	3		2	G	1	2	5	ı	G
3	9	2	14	25	17	311		3	0	0	9	10	2	21
4,	•	7	0	û	ũ	C		4	0	2	3	7	13	21
5	•	2	ı	5	409	417		5	ថ	2	4	11	423	490
YOTAL	.*	5	10	32	489	544	•	TOTAL	r	5	19	32	489	544
VERNEY S	SKILI	SCORF	:		0	. 321 30		AEBNOR (	111	SC IRE	:		c	.56602

# VERIFICATION OF 7 HOUR CEILING FORECASTS MASHINGTON NATIONAL AIRPORT THE VERIFICATION CRITERION IS THE VERNON SKILL SCORE

		PER	151576	NCE					SU	BJECT	IVE		
		C	)ASERI	reD					0	65ERY	ED		
FORE- CAST	1	2	3	٠	5	TOTAL	FORE- CAST	ı	2	3	4	5	TOTAL
ì	¢	0	0	o	3	3	1	0	0	0	0	0	0
š	0	ı	2	1	7	11	2	٥	7.	3	1	2	
j	3 C 3 4 12 6 25 4 O 2 6 10 17 35 5 1 2 9 22 573 607	25	3	0	3	6	10	7	26				
4	3 C 3 4 12 6 25 4 O 2 6 10 17 35 5 1 2 9 22 573 607 OTAL 1 8 21 45 606 681	35	4	0	2	7	15	19	43				
5	3 C 3 4 12 6 25 4 O 2 6 10 17 35 5 1 2 9 22 573 607 TOTAL 1 8 21 45 606 681	5	1	ı	5	19	578	604					
TOTAL	3 C 3 4 12 6 25 4 O 2 6 10 17 35 5 1 2 9 22 573 607 FAL 1 8 21 45 606 681	TOTAL	. 3	8.	21	45	606	681					
VERNON :	SKILL	SCORE	•		0.	.37301	VERNON S	ixtel	f.COAS	;		e	.51364
CLIMAT	OLGG10	AL E	XPECT	ENCY	OF PER	SISTENCE			(	GROUP	ING		
		(	OBSER	VED					1	OBSER	<b>VED</b>		
FORE- CAST	1	2	3	•	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
1	0	0	0	0	0	0	1	0	0	0	0	3	3
2	С	1	1	3	2	7	. 2	0	2	0	1	5	
3	G	3		9	13	33	3	c	3	:0	13	13	39
4	0	2	3	11	18	34	4	0	0	4	11	18	33
5	1	2	g	22	573	607	5	1	3	7	20	567	598
FOTAL	1	5	21	45	606	681	TOTAL	1	•	21	45	606	681
VERNON	SKILL	SCOR	E		d	.41664	VERNON	SKILL	scoa	E		(	.41426

	LUND	CONT	INGEN	CY PR	BGMBS:	15		MULTIPL	E DIS	CR!#	TPAPI	ANALY	\$15
			BASER	/EN					•	OBSER!	/ED		
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	ı	5	3	4	5	TOTAL
i	С	o	9	υ	o	0	1	o	e	9	٥	Q	o
Z	9	2	2	o	5	9	2	ø	3	2	ı	3	•
3	3	4	14	20	28	74	3	C	2	12	21	15	44
4	ç	t	?	9	75	87	4	0	2	4	7	14	27
5	1	ŧ	3	ь	498	511	5	1	ı	4	16	574	596
FEFAL	ì	8	21	45	606	681	TOTAL	i	8	21	45	606	681
JERNON	intle	>603	Ε			0.38254	VFRNON	s SKILL	scco	E		d	.51015

# VERTIFICATION OF 3 HOUR VISIBILITY FORECASTS WASHINGTON NATIONAL AIRPORT THE VERIFICATION CHITERIAN IS THE VERNON SKILL SCORE

SUBJECTIVE

PERSISTENCE

		E	BHSERV	ED					(	BSER	VED		
FURE- CAST	1	2	3	4	5	TOTAL	FORG- CAST	1	2	3	4	5	101
1	1	1	1	2	1	6	1	0	0	0	o	0	0
2	ì	0	ì	0	0	2	ż	0	Q	2	0	2	4
3	0	1	1	2	3	7	3	2	l	2	4	4	13
4	0	0	3	5	13	21	4	i	ı	2	6	10	20
5	1	0	7	18	547	573	5	0	0	7	17	548	372
FOTAL	3	2	13	27	564	609	TOTAL	3	2	13	27	564	609
													40389
VERNON :	SKILL	SCORE			0	.41359	VERNON S	SKILL	SCORI	Ē		0.	<b>- 4</b> 0361
				ENCY		.41359 S1STENCE	VERNON S	SKILL		E GROUP	ING	0	• •0 5 6 1
		AL E					VERNON !	SK ILL	,			0	• • • • • • • • • • • • • • • • • • • •
CL IMAT		AL E	XPECTI					<i>l</i>	,	GROUP		5	
CL IMAT	oroeto	CAL E	XPECTI DBSERV	/ED	OF PER	SISTENCE	Fure-		,	GROUP OBSER	VED		10
CLIMAT FURE- CAST	nLog I (	CAL E: (	XPECTI DBSERV 3	/ED	OF PER	SISTENCE FOTAL 3	Füre~ Cast	i	2	GROUP OASER 3	VED 4	5	10
CLIMAT FORE- CAST	i o	2 1	XPECTI DBSERV 3	/ED 4 0	OF PER	SISTENCE FOTAL 3	FURE~ Cast	i o	5	GROUP OASER 3	VED 4 2	5	10
CLIMAT FURE- CAST 1 2	1 0 0	2 1 0	XPECTI DBSERV 3 1	/ED 4	OF PER 5 1 0	SISTENCE  FOTAL  3 .	FGRE~ CAST 1	i 0 1	o o	GROUP ORSER 3 1 0	VED 4 2 0	5 1 0	10
CLIMAT FURE- CAST  1 2 3	1 0 0	2 1 0	XPECTI DBSERV 3 1 1	/ED 4 0 0 5	OF PER 5 1 0	SISTENCE  FOTAL  3 1 15	FURE~ CAST 1 . 2	1 0 1	2 0 0 2	GROUP ORSER 3 1 0	VED 4 2 0 2	5 1 0	10
CLIMAT FURE- CAST  1 2 3 4	0 1	2 1 0 0	XPECTI DBSERV 3 1 1 1	/ED 4 0 0 5 4	OF PER 5 1 0	SISTENCE  FOTAL  3 1 15 17	FURE~ CAST 1 . 2 3	1 0 1 1 0	2 0	GROUP ORSER 3 1 0 4	VED 4 2 0 2 4	5 1 0 8 12	†0

	LUND	CONT	INGEN	CY PA	OGNOS	ıs	•	NULTIP	LE DI	SCRIM	Inant	ANALY	515
		(	18SER	ven						DASER	VED		
FORE+ CAST	1	2	<b>ું</b>	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
1	2	5	3	3	4	14	1	i	0	1	0	1	3
5	0	ថ	0	0	٥	0	2	1	2	Ž	2	4	10
3	0	0	1	1	o	2	3	U	1	o`	3	3	7
4.	٤	9	1	3	7	11	4	ö	0	3	4	11	18
5	ι	0	8	20	553	582	5	1	ป	7	18	545	571
TOTAL	3	2	13	27	564	609	TOTAL	3	\$	13	21	564	609
VERNOU	SKILL	SCORE	:			0.40013	AE dal).	N SKILI.	SCOR	¢		o	. 38397

## VERIFICATION OF 5 HOUR VISIBILITY FORECASTS WASHINGTON NATIONAL AIRPORT THE VERIFICATION CRITERION IS THE VERNON SKILL SCORE

			JHJEC JBSER							KSIST Obser			
TOT	5	4	3	2	1	FORF- CAST	FOTAL	5	,,,,,	3	2	1	FURE- CAST
0	0	0	0	ð	0	i	7	4	c	2	1	0	1
5	4	0	0	O	1	2	3	3	0	0	0	0	2
16	11	3	1	;	0	3	è	7	1	ı	0	0	3
14	9	3	2	0	c	4	22	12	7	2	0	1	4
661	630	19	8	2	2	5	655	628	17	6	2	2	5
696	654	25	11	3	3	TOTAL	696	654	25	11	3	3	TOTAL
) <u>.</u> 19444	0		F	SCORI	SKILL	VERNON	.24401	c		Ę	scar	SKILL	VERNON
		NG	ROUP	G			SISTENCE	OF PER	NCY	PECT	AL EX	DLOGIC.	CLIMATE
		ED	BSERV	O					ΈĐ	BSERV	0		
tot	5	4	3	2	i	FORE- CAST	TOTAL	5	4	3	2	ı	FORE- CAS (
10	7	2	1	0	0	1	4	2	0	2	0	0	1
4	2	0	i	1	c	2	2	2	o	o	0	ű	2
23	18	3	2	0	0	3	1 ប	10	5	\$	0	1	3
14	11	ż	0	0	0	4	8	5	1	1	1	0	4
645	616	17	7	2	3	5	664	635	19	6	2	2	5
696	654	25	11	3	3	TOTAL	696	654	25	11	3	3	TOTAL
.17302	0.			SCORE	KILL !	VERNON S	.23929	0		İ	score	SKILL :	VERNON S
		NANT	CRIMI	DIS	LTIPLE	M(J	5	364051				LUND (	
515	ANALYS		· ·						ED.	BSFRV	U		
515	ANALYS		BSERV	Q									
5 I S TOTA	ANALYS 5		BSERV 3	2	ι	FORE- CAST	TO FAL	5	4	3	?	ì	FURE- CAST
		€D			l 0		TOTAL	5		3	?	i o	
TOTA	5	ED 4	3	2		CAST			4				CAST
TOTA 5	5	ED 4 0	3	2	0	CAST 1	7	4	<b>4</b> 0	?	1	ú	I I
TOTA 5 4	5 3 2	ED 4	3 1 2	2 1 0	o c	L 2	7	<b>4</b> 8	4 0 4	2	1 0	ij	L L 2
TOTA 5 4	5 3 2 7	4 0 0 2	3 1 2	2 1 0 0	o c 2	CAST  1  2	7 13 44	8	4 0 4 7	? 0 4	1 0 0	.) 1 0	L 2 3

VERNON SKILL SCORE 0.23000

VERNON SKILL SCORE 0.72541

# VERIFICATION OF 7 HOUR VISIBILITY FORECASTS BASHINGTON NATIONAL AIRPORT THE VERIFICATION CRITERION IS THE VERNON SKILL SCORE

		14E	JECT	SUE					WEL	SISTE	PER		
•		50	SFRV	06					£D	BSERV	G		
TOTAL	5	4	3	2	1	FORE- CAST	TOTAL	5	4	3	2	ì	FORE- CAST
0	0	0	0	e	0	1	7	6	9	t	0	c	•
4	3	o	0	ŭ	1	2	3	2	0	1	0	c	2
22	16	4	2	0	0	3	<b>q</b>	6	1	1	1	٥.	3
10	8	1	ı	0	0	4	23	15	4	4	0	0	4
677	649	15	9	2	2	5	671	2	5				
733	676	20	12	2	3	FOFAL	713	676	20	12	2	3	TOTAL
	٥			SCORE	SKILL	VERNON	.21211	٥.			SCERE	SKILL	VERNON :
0.57051	•												
0.17051	•		ROUP BSER'				SISTENCE	OF PER		(PECT)		orae ti	CLIMAT
0.57051 TOTA	3				1	FORE- C457	SISTENCE	OF PER				OLOG (	FORE-
		/ED	BSER	G	1 0				VED	)8SER1	C		FORE-
TOTA	3	/ED	BSER'	2		C45 f	TOTAL	5	VED 4	)85ER1	2	1	FORE- CAST
TOTA	3	/ED 4 0	BSER <sup>1</sup>	2	0	C45 ř	TOTAL	5	vED 4 0	)8\$ER1	2	1 0	FORE- CAST
TOTA 4 8	5 3 5	/ED 4	BSER <sup>1</sup> 3 1 3	2 9 0	0	C45 r	TOTAL 4	5 3 1	vED 4 0	3 1 0	2 0 0	0 2	FORE-CAST
TOTA 4 8 33	5 3 5 24	/ED 4 0 0 5	BSER	2 2 0 0	0 C	C45 T 1 2 3	101AL 4 1	5 3 1 12	vED 4	3 1 0 3	2 0 0	0 0	FORE-CAST
TOTA 4 8 33 44	3 3 5 24 39	4 0 0 5 3	BSER	0 0 0 1	0 0	C45 f 1 2 3 4	TOTAL 4 1 19 5	5 3 1 12	4 0 0 3	3 1 0 3	2 0 0 1	0 0 0	FORE-CAST

	FUND	CONT	MGEN	Y PR	OGNOSIS		MULTIPLE DISGRIMINAME ANALYSIS								
		(	)#SER\	180			DASERVED								
FORE-	1	3	3	•	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL		
1	o	0	0	č	0	c	1	o	٥	a	0	ż	2		
2	G	c	0	0	0	0	2	0	o	i	1	9	11		
3	0	0	٥	C	7	7	3	ø	1	1	0	ì	3		
4	R	ø	0	Ģ	2	2	4	0	9	6	3	15	24		
5	3	2	44	20	647	766	5	3	1	4	16	649*	673		
TOTAL	\$	7	12	20	676	713	TOTAL	3	2	12	20	676	713		
VERRON SXILL SCURE -0.01652					VERNON S	XILL	SCORE	<b>:</b>		0.	21024				

# VERIFICATION OF 3 HOUR CELLING FORECASTS IDLEWILD INTERNATIONAL AIRPORT THE VERIFICATION CRITERION IS THE VERNON SKILL SCORE

		PERS	ISTEN	CE						SUE	JECTI	VE.				
OBSERVED								OBSERVED								
FORE- CAST	1	2	3	4	5	TOTAL		FORE— CAST	ı	2	3	4	5	TOTAL		
	9	9	,	ı	5	26		ı	2	0	1	0	1	4		
1	5	24	6	4	4	43		2	8	30	9	2	9	58		
2	0	13	28	7	10	58		3	2	-14	24	15	6	63		
3	0	3	11	33	37	84		4	. 0	5	16	39	35	95		
4	0	6	10	32 1	-	1072		5	2	6	7	21 1	027	1063		
5	_	35	57	77 1		1283		TOTAL	14	55	57	77	1980	1283		
TOTAL	14	37	,,	•••												
VERNON S	SKILL	SCORE	•		0.	69006		VERNON S	KILL	SCORE			0	. 68840		
CL IKAT	0L0610	CAL E	KPECTE	NCY	OF PER	SIŜTENCE				1	GROUP	ing				
	•		DBSER\							(	OBSER	AED				
FCRE- CAST	1	ź	3	4	5	TOTAL		FORE- CAST	1	z	3	4	5	TOTAL		
	5	3	Į	3	2	12		ı	1	4	0	1	0	6		
1	9	30	6	5	7	57		2	12	25	15	4		64		
2	0	13	28	7	10	58		3	1	18	24	14	10	67		
3	'n	3	11	33	37	84		4	0	2	10	29	38	79		
4	0	6	10		1024	1072		5	٥	6	8	29	1024	1067		
5 TOTAL	14	55	57		1080	1283		FOTAL	14	55	57	77	1080	1283		
VERNON	SKILL	scor	t <del>E</del>		ı	0.69246		VERNON SKILL SCORE 0.68161								
	1.1160	CONT	THEEN	CY P	ROGNOSI	S	•		WLTIP	LE DI	SCRIM	INAH	T ANAL	YS15		
	20.15	•••	OHSER								UBSER	VED				
FORE- CAST	1	2	3	4	5	TOTAL	•	FORE- CASI	ı	2	3	4	5	TOTAL		
			_		•	9		,	4	5	c	0	1	10		
ŧ	9	0	0	0		69		2	9	2.2	7	4	4	48		
2	14	33	8	5				3	1	19	28	14	8	10		
3	c	17	47	52		308 C		4	0		12	25	30	69		
4	С	0	0	0				5	0		10	31	1035	1086		
4	0	5		70		906		TOTAL	14		57	71	1080	1283		
TOTAL	14	55	57	71	1080	1283										
AEKNOS	e SKil	£ 5C0	#£			0.46724		/FR4ON	SKIL	L SCO	RF			0.68638		

A sporting contraction and a second of the s

# VERIFICATION OF 5 HOUR CEILING FORECASTS IDLEWILD INTERNATIONAL AIRPORT THE VERIFICATION CRITERION IS THE VERNON SKILL SCORE

PERSISTENCE .							SUBJECTIVE									
			OKSE	RVED						OBSER	RVED					
FORE- CAST	1	2	3	4	5	TOTAL	FORE CASI		2	3	4	5	TOTAL			
ı	6	7	3	0	11	27	1	0	2	0	0	0	2			
2	5	27	11	6	12	61	?	9	22	19	1	16	64			
3	1	12	27	12	22	74	3	5	18	33	16	17	89			
4	1	6	11	41	54	113	4	0	6	13	45	45	111			
5	10	8	18	52	1088	1176	5	9	12	12	43	1109	1185			
TOTAL	23	60	70	111	1187	1451	101	NL 23	60	70	111	1187	1451			
VERNON	SKILL	SCOR	E			0.54508	VER	YON SKILL	SCOR	E			0.57481			
CLIMAT		CAL E	XPEC T	ENCY	OF PE	RSISTENCE			•	GROUP	ING					
		1	DBSGR	VED			OBSERVED									
FURE- CAST	ì	2	3	4	5	TOTAL	FORE CAST		2	3	4	5	TOTAL			
1	2	3	o	c	1	6	1	7	13	4	0	11	35			
2	10	3e	11	8	20	79	2	3	17	9	4	9	42			
3	0	13	30	10	24	77	3	2	13	28	17	31	91			
4	1	6	11	41	54	113	4	2	9	14	42	54	121			
5	10	8	18	52	1088	1176	5	g	a	15	48	1002	1162			
TOTAL	23	60	70	111	1187	1451	TOTA	L 23	60	70	111	1187	1451			
VÈRNON	VÈRNON SKILL SCORE 0.55119						VERN	VERNON SKILL SCORE 0.53478								
	LUND	CONT	INGEN	ICY P	ROGNOSI	ıs		MULTIP	LE DI:	SCRIM	INAN	E ANAL	YSIS			
		1	DASER	VED					(	08SER	VED					
FORE- CAST	i	2	3	4	5	TOTAL	• FORE CAST		2	3	4	5	TOTAL			
i	c	0	G	0	0	C	ı	1	1	2	c	0	4.			
2	11	36	23	14	37	121	2	9	28	11	4	11	63			
3	1	14	27	29	71	147	3	0	15	34	17	18	84			
4	3	4	13	40	125	185	4	4	3	14	50	68	144			
5	¥	6	7	28	954	1003	5	Ģ	8	9	40	1090	1156			
101 AL	23	60	70	111	1187	1451	T01A	L 23	60	70	111	1187	1451			
VERNON SKILL SCORE 0.45933						0.45933	VFR	:ON SKILI	SCOR	F			0.57463			

#### VERTETOATION OF 7 HEHR CETEING TOPECASTS TOUERALD INTERNATIONAL AIRPORT THE VERTETOATION CRITICATION IS THE VERNEN SKILL SCORE

			 R\$[5]	t wit 6						1147{(	1146		
(MSFRYFP										nesee			•
FGRE- CAST	i	2	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		5	1 1186	FARF- CACI	i	,	3	4	5	TOTAL
1	6.	•	?	l	_	71	3	,	ז	G	ı	0	2
2	8	53	4	7	20	61	,	1<	21	4,	ι		55
3	į	15	16	18		74	,	4	₹',	28	23		34
4	;	7	17	")	51	113	4	7	10	16	44	54	176
5	U	16	?1		1765	1177	5	4	13	11		1093	1173
TUTAL	24	61	60	176	1181	1457	TOTAL	. 4	61	69	126	1161	1452
VERNON SKILL SCORE 0.43612						traina.	stiti	SCC4	f			0.56092	
CLIPAT	D, 1610				OF ET	RSISTENCE				, <del>1</del> 1100			
21.25		1	いいろとべ	1E-			5405		,	167 <b>E</b> 0	4F()		
FÜRF- Cașt	ı	2	1	4	5	TUTAL	FI'RE- CAST	1	2	3	4	5	TOTAL
t	C	0	e	e	c	c	1	1	7	6	4	4	22
2	11	16	6	5	28	63	7	4	17	t	5	11	44
3	4	27	16	26	31	95	1	t,	,	4	16	14	47
4	3	7	17	24	57	111	4	4	ą	.38	36	30	157
5	<i>(</i> -	16	21	69	1065	1177	5	4	1)	12	<i>1</i> ι	1072	1162
TOTAL	24	51	69	176	1181	1457	TOTAL	74	61	60	126	116:	1452
VERNCY SKILL SCORE 0.43010						VERNUN	SKILL	SCORE	Ē		•	0.44225	
	LUND				ROGNOS	15	•	HIL T [PI				T ANAL	<b>421</b> 5
****		1	OHSER	VEP					•	DHSER	√f,D		
FORE- CAST	1	2	3	4	5	TOTAL	FURF- CAST	1	2	3	•	5	TOTAL
1	2	С	0	o	5	7	1	o	0	0	0	0	0
2	13	26	12	16	43	110	7	6	14	8	1	19	54
•	,	17	26	18	43	132	3	6	15	21	18	16	79
4	3	3	10	24	65	105	4	4	7	13	31	54	111
5	4	15	12	4 n	1019	1098	•	8	20	18	70	1092	1200
TOTAL	24	61	60	126	1181	1457	INTAL	24	61	60	126	1181	1452
VERDON SKILL SCORE 0.44514						VERNON	SKILL	SUDR	f			0.44714	

#### VERIFICATION OF 3 HOUR VISIBILITY FORECASTS IDLEWILD INTERNATIONAL AIRPORF. THE VERIFICATION CRITERION IS THE VERNON SKILL SCORE

		PEI	RS157	ENCE						St	nasec.	1141		
UBSERVED										•	DBSER	O3v		
FORE- CAST	1	2	3	4	5	10TAL		ORE-	1	2	3	4	5	JATOT
1	14	4	2	5	6	31		1	2	ì	Û	1	4	8
2	3	3	7	0	6	19		2	9	9	5	3	6	32
3	3	1	7	4	14	29		3	6	6	14	3	17	46
4	c	6	7	6	24	45		4	3	4	13	20	36	76
5	5	8	17	31	1151	1212		5	3	2	8	21	1136	1172
TGTAL	25	22	40	48	1201	1336	ī	UTAL	25	22	40	48	1501	1336
YERNCN	SKILL	SCOR	E		(	. 30555	٧	ERNON	SKILL	SCOR	Ē			0.55926
CLIMA	TOLOG10	CAL E	KPECT	ENCY	CF PEP	SISTENCE				(	GROUP.	ING		
		(	DBSER	VED						(	CHSER	VED		
FURE- CAST	i	2	3	4	5	TOTAL		DRE-	1	2	3	4	5	TOTAL
ı	11	2	1	2	8	24		¥	3	3	2	٥	1	9
2	5	5	4	3	4	22		2	7	0	9	7	19	42
3	3	5	12	6	17	43		3	4	5	6	2	11	25
4	18	2	6	6	21	35		4	5	7	5	10	24	51
5	5	8	- 17	31	1151	1212		5	6	10	18	29	1146	1209
TOTAL	25	22	40	***	1051	1336	ſ	OTAL	25	52	40	48	1201	1356
VERNON	SKILL	SCORE	<b>:</b>		C	.51325	٧	ERNON	SKILL	SCOR	E			0.40291
	LUND	CONT 1	NGEN	CY PR	DGHDS1	s		Ħ	ULTIPL	E 015	icr (2)	! <b>NANT</b>	ANAL	YS ! S
		C	ASER1	/ED						C	BSERV	(EĐ		
FORE- CAST	1	s	3	4	5	TUTAL		ORE-	ı	2	3	4	5	TOTAL
ı	12	2	3	4	3	24		ı	10	2	2	3	2	19
2	4	4	5	i	8	72		5	6	5	5	٥	6	22
3	4	3	9	4	13	38		3	4	6	5	3	9	27
4	c	3	5	6	15	29		4	ı	3	11	3	28	46

VERYON SKILL SCORE

1336

0.51649

33 1157

48 1201

TOTAL

VERNOR SKILL SCORE

1223

1336

0.49727

### VERIFICATION OF 5 HOUR VISIBILITY FORECASTS IDLEWILD INTERNATIONAL AIRPORT THE VERIFICATION CRITERION IS THE VERNON SKILL SCORE

			RSIST								JAJEC 1			
		(	DUSER	VED						(	JBSERY	ÆÜ		
FORE- CAST	1	2	3	4	5	TOTAL		FORE- CAST	t	2	3	4	5	TOTAL
1	10	4	5	2	10	31		1	4	3	0	1	2	10
2	2	4	3	2	9	20		5	7	5	2	2	11	27
3	1	3	ž	4	50	30		3	5	5	9	8	27	54
4	7	2	5	4	32	45		4	1	5	4	9	44	60
5	17	9	14	35	1115	1185		5	10	7	14	27	1105	1160
TUTAL	27	22	29	47	1186	1311		TOTAL	27	22	29	47	1186	1311
AERNON	SKILL	SCOR	E			0.37647		VERNON	SKILL	SCOR	E			0.41356
CLIMAT	LOFOCI	CAL E	XPEC T	FNCY	OF PE	RSISTENCE				•	GROUP	ING		
			OBSER	vED						(	DBSER	VED		
FORE-								FORE-						
CAST	i	2	3	4	5	ICTAL		CAST	1	2	3	4	5	TOTAL
1	10	4	2	1	7	24		1	2	3	6	1	8	20
2	2	6	4	1	16	29	•	2	2	0	3	3	10	18
3	3	2	7	5	22	39		3	8	5	5	5	18	41
4	0	0	1	2	10	13		4	1	3	0	3	18	25
5	12	10	15	38	1131	1206		5	14	11	\$5	35	1137	1207
TOTAL	27	22	29	47	1186	1311		TOTAL	27	22	29	47	1186	1311
VERKON	SKILL	SCOR	E			0.40241		VERNON	SKILL	SCORI	E			0.31431
	LUND				ROGNOS	15		,	WL FIPS				ANAL'	YSIS
FOPE-			NBSER	A E 1)				50n¢			365ER\	EU		
CAST	1	2	3	4	5	TOTAL		FURE- CAST	1	2	3	4	5	TOTAL
1	13	12	10	6	36	77		1	6	2	1	1	2	12
2	2	1	3	3	23	32		2	7	6	5	•	13	95
3	2	6	5	10	153	176		3	2	7	6	5	50	40
4	Û	0	0	ø	0	ŋ		4	2	2	2	4	28	38
5	10	3	11	26	914	1076		5	10	•	15	33	1123	1186
TOTAL	27	22	73	47	1186	1311		FOTAL	77	27	Š¢	41	1186	1311
46446#	SKILL	SEDA	F			0.25774		VERNUN	SKILL	SCORE	:			D-~372A

### VERTETCATION OF 7 HOUR VISIBILITY FORECASTS TOLENILE INTERNATIONAL AFRONE THE VERTETCATION CRITERION IS THE JERMON SKILL SCORE

PERSISTENCE

SUBJECTIVE

		PFX	21211	74C, F									•
		3	HSFRV	£₽					O	BSFRV	₹Ŋ		
FURE- CAST	1	?	3	4	5	TOTAL	FORE- CAST	1	2	š	4	5	TOTAL
1	10	0	4	,	15	31	1	2	1	ì	o	0	4
2	3	1	5	ì	10	20	2	7	4	5	1	11	28
3	2	3	3	ı	27	31	,	16	4	13	ıc	28	69
4	1	?	4	2	36	45	4	,	2	6	1	45	64
5	15	12	26	44	1114	1211	5	11	1	15	ic	2113	1173
TOTAL	3 %	18	47	SQ	1147	133#	JATOT	*1	ln.	47	50	147	1338
AEKACN	SKILL	SCORE			0	.21667	VERNON	SKILL	SCORE			o	.43513
CL IMA	TOLOG 1	CAL E	XPFC1	E-11C.A	1 <b>3</b> 4 40	RSISTENCE				GRUUP	Pau		
		(	NBSFR	ven						OBSEK	√F D		
FORE- CAST	1	2	3	4	5	TOTAL	FIRF- CAST	t	,	3	4	,	ABGE
1	į	С	3	ı	7	14	1	ь	,	1	,	25	41
2	2	2	5	i	14	24	2	1	1	2	5	6	15
3	6	2	6	2	43	5.1	3	1	3	3	1	28	81
4	ç	a	Ç	P	c	;	4	<i>(.</i>	Э	1	2	25	35
5	16	34	2н	46	1133	1237	5	17	4	29	39	1113	1206
IGIAL	31	18	42	50	1147	1339	JATOT	31	18	42	50	1197	1336
AFRACH	SKILL	. scn•	F			0.25616	VFRACY	SKILL	. SCGA	E			0.24560
	LUND	CBYS	INGEN	ICY P	ROGNOS	15		MIETTP	LF DI	SCR 1 ª	INANI	ANAL	<b>Y</b> S1S
			OBSER	VEC						NHSEA	VFD		
FORE- CAST	ì	,	3	6	5	IOIAL	FORE- CAST	1	2	3	•	5	1014
1	9	0	c	٤	С	Ģ	ι	10	3	8	3	21	45
2	1	,	4	2	16	23	7	e	2	5	5	13	5.5
3	4	2	٠	*	56	40	3	5	6	5	2	30	48
4	4	2	5	:	13	24	4	2	Ł	3	8	37	51
5	20	12	28	37	1114	1211	5	1.5	6	21	35	1096	1172
TOTAL	31	13	47	50	1197	1378	TOTAL	31	18	42	50	1197	1330
1E 84:04	SKILL	. 5004	lŧ			0.18666	VERNON	SKILL	. SCOH	ξ			0. 32447
				50	1197						50	1197	

#### VERIFICATION OF 2 HOUR CUILING FORECASES OFFUTE AFR, OMENA, NEBRASKA THE VERIFICATION CRITERION IS THE VERNOW SKELL SCORE

		P	FK <b>S1</b> Š	TENCE						,	SUBJF	TIVE		
			OBSE	XVED							CHSE	RVFU		
FORT- CAST	ı	Z	3	4	5	TOTAL		FORE - CAST	1	2	3	4	5	TOTAL
1	1	1	1	o	С	\$		1	0	o	0	1	8	9
2	0	21	2	4	t	28		?	0	21	3	2	4	30
3	c	?	9	1	2	14		3	С	5	4	5	3	22
4	c	3	,	50	25	91		4	0	2	2	54	29	87
5	¢	4	2	20	532	55#		5	1	3	2	23	517	546
TOTAL	1	31	16	85	561	694	1	TOTAL	1	31	16	45	561	694
VFRNCN	SKILL	SCO	l F			0.74713	,	F RNON	SKILL	scoi	LE			0.63949
CLIPAT	OLOG !	CAL F	XFEC1	ENCY	OF OF	RSISTENCE					GROUP	146		
			OHSER	VED							OUSER			
FORE-		_	_			_	F	URE-						
CAST	l	7	3	4	5	TOTAL	C	AST	1	2	3	4	5	TUTAL
1	1	3	1	1	C	6		1	1	1	0	0	o	2
2	c	19	2	3	ı	25		7	r,	21	3	5	ı	30
3	0	2	y	1	2	14		3	z	3	y	ο	2	14
4	0	3	2	60	26	91		4	0	2	2	60	26	90
5	0	4	2	20	532	558		5	o	4	2	20	532	558
TOTAL	1	31	16	85	561	694	T	OTAL	1	31	16	85	561	694
VERNON	SKILL	SCOR	Ε		d	).7410 <b>8</b>	٧	ERNON :	SKILL	SCOR	E		Ċ	). 7503 <b>8</b>
	LUND		INGEN		OGNOSI	s		PH,	ILT IPL				ANALY	<b>51</b> 5
FURE- CAST	ì	2	3	4	5	TOTAL		RE-	ı	2	)85EK1 3	ÆD 4	5	TOTAL
	_			_									-	
1	0	0	1	0	0	G		1	t	ı	1	0	0	3
3	1	22	,	•	1	31		7	ð	20	4	•	2	30
4	0	2	4	1	3	15		3	9	3	7	3	1	14
5	G	3	1		110	1H7		•	0	4	2	53	11	70
TOTAL	1	31	16		447 561	461		5	ľ	3	2		547	571
		,,	417	ده.	ופי	674	វព្	TAL	1	11	16	#5	561	694
VERNOW S	LL</td <td>SCARE</td> <td></td> <td></td> <td>٥.</td> <td>.609R5</td> <td>٧c</td> <td>2404 S</td> <td>«ILL</td> <td>ระกวร</td> <td></td> <td></td> <td>o</td> <td>. 15529</td>	SCARE			٥.	.609R5	٧c	2404 S	«ILL	ระกวร			o	. 15529

### VERIFICATION OF 4 HOUR CEILING FORECASTS OFFUTT AFB, OMAHA, NFBRASKA THE VERIFICATION CRITERION IS THE VERNON SKILL SCORE

SUBJECTIVE

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PERSISTENCE

		PE	W2121	ENCE					3	nuace	ITAL		
			ORSER	VED						GBSER	VFD		•
FORE- CAST	i	2	3	4	5	TOTAL	FORE- CAST	ı	2	3	4	5	TOTAL
1	ı	0	0	1	2	4	1	1	2	1	1	4	9
2	2	11	6	3	5	27	2	0	9	7	3	5	24
3	0	3	6	4	2	15	3	1	8	6	8	5	28
4	. 0	4	3	33	35	75	4	1	1	4	36	29	71
5	0	6	8	23	494	531	5	0	4	5	16	495	520
TOTAL	3	24	23	64	538	652	TOTAL	3	24	23	64	538	692
VERNON	SKILL	SCOR	E			0.55236	VERNON	SKILL	SCOR	E		o	.58184
CLIMAT	00010	CAL E	XPECT:	ENCY	OF PEI	RSISTENCE			(	CROUP	ÍNG		
		•	DASER	VED					(	DBSER	/ED		
FORE- CAST	1	2	3	4	5	TOTAL	FOPE- Cast	i	2	3	4	5	TOTAL
ì	c	1	0	0	٥	1	1	2	1	1	2	2	
2	3	12	7	5	8	35	2	0	0	0	0	0	0
3	0	1	5	3	ı	10	3	ŧ	u	9	4	7	32
4	0	4	3	33	35	75	4	0	5	4	30	33	72
5	0	6	8	23	494	531	5	G	7	9	28	496	540
TOTAL	3	24	23	64	536	652	TUTAL	3	24	23	64	538	652
VERNON :	SKILL	SCON	E		(	0.55445	VERNON S	SKILL	SCOR	E		0	.48728
	LUND	CONTI	INGEN	CY PR	OGNOSI	s	MI	JLTIPI	.E 015	SCRIMI	NANT	ANALY:	s 1 S
		C	BSER	VED					C	BSERV	EΟ		
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
1	0	0	0	0	C	0	1	ı	0	0	0	1	2
2	3	12	9	5	7	36	2	2	10	6	4	4	25
3	0	5	6	21	12	44	3	0	7	6	5	4	22
4	e	5	4	28	75	112	4	c	4	5	32	23	64
5	c	2	4	10	444	460	5	0	3	6	23	306	538
TOTAL	3	24	23	64	538	657	TOTAL	3	24	23	64	538	652
RENFON S	SKILL	SCORE	•		d	.50906	VERNON S	KILL	SCORE	ŧ		٥.	. 60962

#### VERTITION OF 6 HOME CHILLING FORECASTS OFF HIT ARB, OMAHA, ALBRANA SKILL SCOPE THE VEHIFICATION CRITERION IS THE VEHICLE SKILL SCOPE

SUBJECTIVE

SHYCRY, T

PERSISTENCE

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FORE- CAST	1	2	3	4	4	TOTAL		986 - 451	ı	2	}	4	,	TOTAL
1	1	7	c	1	1	1		1	7	2	e	ı	į	ì
Ł	1	7	6	3	3	26		£	1	5	5	5	5	21
,	s	,	4	4	4	14		3	ð	2	6	9	5	22
4	c	4	3	3 i	35	нэ		4	ı	3	3	16	38	et
5	c	3	6	13	499	541		5	J	4	٠,	25	497	331
TUTAL	,	16	19	75	>51	664	ti	DT AL	2	16	17	16	551	664
VERNON	WILL	SCORI	Ţ			0.46710	₹!	[RAUN	SKILL	SCGA	É		ſ	:. <b>\78</b> 40
CL:#A	tocaet	CAL F	XPEC I	FNCY	OF PF	RSISTENCE					SHOUP	Ins		
		1	PRSEK	AF L							UBSER	V£0		
FOPE~ CAST	1	2	•	4	5	INTAL		GRE- ASI	ı	2	. 1	4	5	TOTAL
1	0	1	0	3	O	1		ı	2	t	0	2	ı	8
2	7	3	6	5	12	29		,	9	o	1	6	ç	0
3	0	5	4	3	2	14		3	9	*	Ą	3	12	32
4	r	. 4	3	35	38	90		4	2	1	1	4	1	7
5	n	3	6	33	499	541		5	0	6	7	67	537	619
TOTAL	5	16	19	76	551	664	Te	)TAL	2	16	19	76	551	664
VERNCH	SKILL	SCOR	Ę			0.46501	۷۱	- MUM	SKILL	SCOR	ι		c	.37573
	LUND	ይባሉተ	LYGFY	ĉy pg	เครพตร	.15		•		. c n:			ANALY	
		;	CASER	v.D				•	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		BHSERI		mant t	311
FIJRF- CAST	i	2	3	4	5	TOTAL		RE-	1	2	3	4	5	TOTAL
ı	c	0	٥	o	o	r		1	ı	9	0	ì	1	3
5	2	5	10	6	11	34		2	e	ಕ	9	7	2	26
3	С	4	0	3	22	15		3	ı	4	0	16	9	10
4	0	5	5	19	15	124		4	0	ı	5	18	17	41
5	c	,	4	??	443	4/1		4	r	3	٠,	34	522	584
TOT AL	,	16	10	76	551	664	to	JA T	,	16	19	16	551	664
464464	STLE	18052			,	D. 38584	ĄĘ	RNUN 1	ex It t	<b>\C.</b> ₽7			٤	. 52037

#### VERTELATION OF 2 HOUR ZISTBILITY FORECASTS OFF-HIT ACC. DRAHA. NERFASRA THE VERTELATION CRITERION IS THE VERRON SKILL SCORE

The state of the s

		PE	, 15151	FNCE						UBJEC			
		•	HSFK	AEU					1	OBSFR	VFO		
FORE- CAST	1	2	,	•	5	taux	FORE- CAST	1	2	ś	4	5	10146
	3	0	υ	0	s	3	1	3	Ç	ð	0	1	•
2	0	4	0	1	3	H	2	0	C	0	1	0	i
3	0	3	6	•	4	17	3	0	5	5	5	6	21
4	C	c	5	6	•	5.5	4	0	3	7	8	14	32
5	2	1	7	10	624	64+	5	2	0	9	?	318	636
TOTAL	5	3	21	21	639	694	FOTAL	5	8	21	21	639	694
VERNON	SKILL	SCOR	E		0	.59014	VERNON	SKILL	SCOR	£		0	.53195
CLIMAT	OCOG10				OF PER	SISTENCE			1	GMOUP	ING		
		1	DBSER	VED					1	OBSEP	VED		
FORE~ CAST	ì	2	3	4	3	FOTAL	FORE- CAST	1	5	3	•	5	TOTAL
ı	3	0	9	0	0	3	٤	2	0	G	0	0	2
7	Ç	4	0	C	2	6	2	0	2	ø	0	1	3
3	a	3	4	5	5	14	3	1	3	8	•	•	24
4	0	0	•	6	•	22	4	O	2	>	4	6	17
•	2	1	7	10	624	644	5	Z	ı	8	11	626	648
TOTAL	5	•	21	21	<b>\$39</b>	694	TCTAL	5	ú	21	21	434	694
VERNON	SXILL	SCOR	F		Ó.	.59667	VERNON S	KILL	SÇORI	E		0.	. 55760
	LUND	CONT	INGEN	CY PR	UGNOS I !	s	M	ILT FPE	E 01:	SCRIMI	LMANT	ANALY!	
		(	DESER	/ED					•	DOSERV	/EC		
FORE- CAST	ì	2	1	4	5	JATOT	FORE- CAST	1	2	3	4	5	TOTAL
1	0	0	0	o	c	o	ì	3	0	0	0	1	•
2	¥	4	Û	ι	3	11	2	U	ı	0	0	1	2
3	0	3	6	4	4	17	3	0	6	6	5	6	22
	1	1	ŧ i	14	42	69	4	0	0	3	2	3	ŧ
4	•												
5	1	0	4	\$	540	397	5	2	1	12	14	628	657

VERNON SKELL SCORE 0.51153

0.55005

VERNON SKILL SCORE

### VERIFICATION OF 4 HOUR VISIBILITY FORECASTS OFFUTT AFB, OMAHA, NEBRASKA THE VERIFICATION CRITERION IS THE VERNON SKILL SCORE

			15157							JBJEC I			
		(	BSER	AED					,	DBSERY	/ <b>?</b> .U		
FORE- CAST	ì	2	3	4	5	TOTAL	FORE— CAST	ì	2	3	4	5	TOTAL
1	3	٥	0	e	¢	3	1	2	0	0	0	0	2
2	1	ı	0	0	4	6	2	1	0	Z	0	0	3
3	0	1	7	6	4	18	3 .	1	1	3	5	11	51
4	0	1	4	5	12	22	4	0	4	4	6	16	30
5	C	2	7	19	616	644	5	0	0	8	19	609	637
TOTAL	4	3	18	30	636	693	10TAL	4	5	18	30	636	693
VERNON	SKILL	SCOR	E		C	3,51308	VERNON	SKILL	SCOR	E		o	.43875
CL EMAT	000010	CAL E	XPECT	ENCY	OF PE	ISISTENCE				GROUP	ING		
			OBSER	AED						OBSER	VED		
FORE- CAST	i	2	3	4	5	TOTAL	FORE— Cast	1	2	3	4	5	TOTAL
ı	3	0	0	o	0	3	1	1	0	0	Q	0	1
2	1	1	0	0	2	4	2	1	ı	0	0	2	4
3	0	1	6	6	3	16	3	2	ı	6	6	8	23
4	0	t	4	4	14	23	4	Q	1	3	3	9	16
5	0	2	8	20	617	647	5	c	2	9	21	617	649
TOTAL	4	5	18	30	636	673	TOTAL	4	5	18	30	636	693
VERNON	SKILL	SCOR	Ę		;	0.50728	VERNON	SKILL	SCOR	E		d	.43786
	<b>.</b>	· · vr:	NGENI	CY PR	DGNC:-I	s	,	NJLTIPL	E 015	ÇRIMI	NANT	ANALYS	S 15
			HSERI	/&D					C	6SERV	ED		
FORE- CAST	ì	2	3	4	5	FOTAL	FORE- CAST	1	2	3	4	5	TOTAL
ı	ι	o	0	0	2	3	1	3	0	0	0	1	4
>	3	2	ı	c	2	8	2	1	0	i	0	2	<b>6</b>
3	0	0	6	7	5	10	3	~0	7	6	3	4	15
4	0	1	5	8	25	39	4	0	ı	5	4	9	19
5	0	2	6	15	602	625	5	c	2	6	23	620	651
FOTAL	4	5	18	30	636	693	TOTAL	4	5	18	30	636	693
VERNON S	SKILL	SCORI	:		0	.48516	VERNON	SKILL	SCORE	ŧ		0	.50316

#### VFRIFICATION OF 6 HOUR VISIBILITY FORECASTS OFFUTI AFR. DMAMA, MEBRASKA THE VERIFICATION CRITERION IS THE VFRRUN SKILL SCORE

			RSIST NBSER							JBJFC JBSER			
FORE- CAST	1	2	3	4	5	TOTAL	FORE-	1	2	3	•	5	TOTAL
l	3	0	8	O	o	3	1	0	Q	9	0	٥	0
2	٥	0	ı	0	6	7	2	0	0	2	0	O	2
3	o	2	3	5	3	1.3	3	3	0	0	5	5	13
4	C	Ö	Ž	3	15	20	4	0	£	1	4	12	18
•	o	0	8	15	552	575	5	0	1	11	16	557	585
TOTAL	3	2	14	23	516	618	TOTAL	3	2	14	23	576	618
YERNON	SKILL	SCOR	E		C	2.43081	VERNON	SKILL	SCOR	F		0	.?210*
CLIFAT	ពស្រួចវត	.4L E	xPECT	FNCY	OF 268	SISFENCE			,	GROUP	INC		
		1	OBSEK	VED					(	DBSER	¢9v		
FORE-	ı	2	3	4	5	TOTAL	FORE~ CAST	ì	2	3	4	5	TOTAL
i	o	G	o	•	0	0	1	3	0	Q	0	ı	4
2	3	0	1	¢	4	3	2	C	0	ð	ı	0	ŧ
*	0	:	ž	5	7	17	3	o	ı	2	2	: 2	1.7
4	C	ů	1	Ş	9	12	4	0	0	2	5	11	18
5	ō	0	10	15	556	561	5	o	1	10	15	552	578
701 A1	3	2	14	21	576	618	INTAL	3	2	14	23	576	618
VERNGR	SKILL	5CDH1	<u> </u>		Q	. 37266	VERNUN	SKILL	SCORI	Ē		o	.36885
	LUND	CONFI	INGEN	C¥ PR	120490	s	м	JLTIPL	.E 015	MIRS	I MAN I	ANALY	<b>S</b> I S
		C	1858R	73V					(	BSEK	ren		
CASI	1	2	3	4	•	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
i	e	ი	o	Đ	c	r	7	,	o	0	0	0	Ł
ě	3	2	4	5	g	23	7	1	1	o	1	4	7
٤	G	0	3	10	57	10	1	o	ı	3	5	7	11
4	c	э	0	ខ	Č	J	4	0	þ	3	1	17	21
٠,	С	O	7	ħ	510	525	5	0	0	8	16	553	517
iofai	3	7	14	23	576	619	10181	•	2	14	,3	576	618
VERS.	<b>- K</b> { <b>L L</b>	SCNKE			0	.26717	VERNON S	SKILL	SCORE			o	.42551

### VERTELCATION OF 2 HOUR CEILING FURECASTS RANDOLPH AFB, SAN ANIONING TEXAS THE VERIFICATION CHITERION IS THE VERNON SKILL SCORE

		ρ		LNCF							CTIVE		
FORF- CAST	i	2	15115F 3	RVED 4	5	TOTAL	FORE~ CAST	ı	\$	0856		5	TOTAL
1	4	2	4	1	С	11	ì	ı	1	2	ı	1	6
2	e	4	,	2	1	14	7	2	გ	6	2	٥	16
3	ō	6	74	27	16	173	3	ì	6	?5	78	15	126
4	c	0	14	52	18	84	4	٥	ı	19	4.8	21	95
5	0	2	14	19	425	460	5	c	0	11	2.5	416	449
TOTAL	4	14	113	101	460	692	TOTAL	4	14	113	101	÷60	692
VERNON	SKILL	sco	RE			0.69897	VERNON	SKILI	. 550	KE			0.68483
CLIMAT	orogia	AL E	XPEC 1	ENCY	OF PER	RSISTENCE				GRBUF	tug.		
			OBSER	VED						OBSER	OBV		
FORE- CAST	t	2	3	4	5	FOTAL	FORE- CAST	ì	Z	3	4	5	TOTAL
1	1	ž	2	0	0	5	1	3	4	4	1	o	12
2	3	2	8	2	ı	16	2	1	2	5	1	0	9
3	0	5	75	28	16	127	3	0	5	69	25	16	115
4	0	0	14	52	18	84	4	0	7	24	55	28	109
5	0	2	14	19	425	460	5	0	:	11	19	414	447
FOTAL	4	14	113	101	460	692	TOTAL	4	14	113	101	460	692
VERNON	SKILL	SCOR	E		(	0.69391	VERNON	SKILL	SCOR	€		C	.68213
	LUND	CONT	INGEN	CY PR	OGNOSI	\$	M	JLTIPL	.E D1	SCRIM	IMANI	ANALY	\$15
		1	DBSER	VED					į	OBSER	VED		
FORE- CAST	1	2	3	4	5	TOTAL	FURE- CAST	1	2	3	4	5	TOTAL
1	4	2	4	i	0	11	1	6	3	4	ì	o	12
2	0	4	8	5	Ł	15	2	O	3	9	2	ι	15
3	C	6	72	28	16	155	3	0	6	76	34	16	132
4	0	0	15	51	31	97	4	9	1	21	47	31	100
5	O	2	14	14	412	447	5	ð	ì	3	17	*12	433
1014L	4	14	113	101	460	647	SOTAL	4	14	113	101	460	692
VERNON S	SKILL	SCORE	F		0	.67465	VERNON S	KILL	SCUA	E		0	49996

#### VERIFICATION OF 4 HOUR CEILING FORECASTS RANDOLPH AFR, SAN ANTONIO, TEXAS THE VERIFICATION CRITERION IS THE VERNON SKILL SCORE

		-	1515T DRSEX							INJEC IASER			
FORE- CAST	1	2	3	4	5	TOTAL	FORF - CAST	1	2	3	4	5	TOTAL
ì	ύ	\$,	4	2	i	11	1	c	0	o	c	ð	0
2	0	2	3	9	ž	13	2	c	2	5	1	0	8
3	Ü	3	39	79	49	120	3	0	6	45	24	7	62
4	C	1	11	40	26	76	4	0	1	14	48	47	115
5	c	0	18	35	405	45H	5	c	1	12	33	429	475
TOTAL	0	10	81	106	483	680	TOTAL	c	10	н	100	483	680
VERNON	SKILL	SCOR	ť		d	.47846	VERNON	SKILL	SCOR	E		d	.60908
CLIMAT	DL0610	AL E	XPEC 1	FNCY	OF PFS	SISTENCE			•	GROUP	ING		
			OB3E <b>4</b>	ven					(	DASER	VED		
FORE- CAST	1	2	3	4	5	TOTAL	FORE~ CAST	1	2	3	4	5	TOTAL
1	С	i	4	ı	1	7	1	0	j	0	1	1	5
2	G	1	5	o	ŧ	7	2	c	2	11	3	2	18
3	0	7	29	19	23	78	3	0	5	39	25	49	118
4	0	1	25	51	53	1 30	4	0	0	17	41	49	107
5	0	0	1.6	35	405	458	5	0	0	14	36	382	432
TOTAL	0	įO	81	106	483	6 <b>9</b> 0	FOTAL	0	10	81	106	483	680
VERNON	SKILL	SCOR	E		(	0.48470	VERNON	SKILL	SCOR	E		. (	3.45392
	LUND	CONT	INGEN	CY PR	OGNOS E	s	m	UL 1 1PL	.E 015	SCRIM	IHANT	ANALY	\$15
		(	DRSEA	VED					(	BSER	AE D		
FORE~ CAST	1	2	3	4	5	ENTAL	FORE- CAST	ì	2	3	4	5	FOTAL
i	o	5	>	7	1	13	1	0	4	•	1	0	9
2	0	2	24	3	9	42	2	o	è	9	1	2	14
3	0	2	26	39	56	123	3	0	4	41	36	48	129
4	c	1	11	79	37	78	4	O	0	12	41	42	95
5	С	9	15	29	380	424	5	0	0	15	21	391	433
1914.	0	10	81	106	483	680	TOTAL	O	10	81	106	483	680
VERNOR	SKILL	3¢08	E		(	0.41>65	VERNOV	skill	SCOR	£		(	2.49743

### VERIFICATION OF 6 HOUR CEILING FORECASTS RANDOLPH AFR, SAN ANTONIO, TEXAS THE VERIFICATION CRITERION IS THE VERNON SKILL SCORE

		•	PERSIS OUSE	TENCI	į.					SURJE		:	
FORE- CAST	. 1				, ,	TOTAL	FORE- CAST	1	2	OHSE 3		. 5	TOTAL
1	O	1	1 3	. •	2	11	1	e	0	0	1	. 0	i
2	С		6		3	13	,	- 1	2	6			10
3	2		29	2	59	119	3	1	,	48	21	26	103
4	0	2	18	21	30	78	4	c	1	12	38	38	96
5	1	3	24	40	359	457	5	1	,	7	38	419	448
TITAL	3	13	80	24	483	678	TOTAL	1	13	80	49	483	678
VERAC	N SKIL	L SCO	RE			0.3427H	VERNON	SKILL	. SCO	RE			0.55726
CLIP	<b>A16L06</b>	ICAL :	EXPECI	FNCY	OF PER	ISTSTENCE				GRUGE	1 N G		
			OBSER	۱۹۴۲						OBSER			
FORF- CAST	ī	2	3	4	5	TOTAL	FURE - CAST	1	2	3	4	5	TOTAL
1	•	o	3	()	c	3	1	·	1	0	2	0	3
2	•	1	2	5	1	11	,		1	h	4	4	19
3	2	7	32	20	35	<b>≯</b> 6	1	:	6	31	2 n	50	117
4	c	0	12	Źl	43	76	4	0	2	12	23	49	86
5	1	5	31	53	402	492	5	1	3	29	40	380	453
TOTAL	3	13	но	49	483	47H	THTAL	3	13	40	99	483	678
VERNCA	SKILL	SCA	ı£		o	. 3452 7	VFPMIN	SFILL	SCPR	Ł		o	. 33289
	LUND	COAL	INGEN	CY P4	IGNOS‡	s	м	0 <b>.</b> 112.	.C 015	SCR1+1	INANT	ANAL Y	\$15
			りゃうぞれ	At u					ſ	JHSEKY	ED		
FORE- CAST	1	2	1	4	5	TOTAL	CV21	ı	2	,	4	5	TOTAL
ı	r	,	5	۲	4	19	1	r	ı	,	,	0	5
,	,	4	15	4	12	17	2	2	2	6		0	14
,	1	,	20	'?	45	110	1	e	,	42	12	30	111
4	C	,	10	Ŋ	4.3	25	4	n	0	10	22	56	88
״		3	22	13	359	417	4	ı	1	20	19	397	460
101AL	,	13	<b>4</b> €	1,	4H3	674	PPIAL	1	13	н0	19	483	578
AEBIN 1	sktii	SCOAR	•		e.	31 37%	VERNON S	«ILL	८८५७६			0.	45763

#### VERIFICATION OF 2 HOUR VISIBILITY FORECASTS RANDCLPH AFH, SAN ANTONIO, TEXAS THE VERIFICATION CRITERION IS THE VERNON SKILL SCORE

**Ž**,

			SISTE Dasery							1 )3LR			
FORE- CAST	1	2	)	4	5	TOTAL	FORE- CAST	ì	7	3	4	5	TOTAL
1	4	0	3	1	4	12	1	ı	1	2	0	c	4
2	1	ı	2	1	c	5	2	2	0	1	С	2	5
3	3	0	7	3	5	18	1	4	0	8	ı	7	25
4	c	t	6	4	1	18	4	c	1	ь	٠,	13	28
5	1	2	5	15	626	649	5	2	7	4	12	620	640
TOTAL	า	4	23	24	642	702	TOTAL	7	4	23	24	642	702
VERNON S	SKILL	SCORI	ŧ		0.	.55287	VIPNOV S	KILL	SCORE			c.	53407
C 1 1 1 1 1 1	tar ac t	C 4 1 1	EVBEC	4.7 VIC.A	11F 064	RSISTENCE				GRAUP	146		
CLIVA	,00001	CME	0856		177 71	71776 166				ORSER			
FORE-							FORE-						
CAST	t	5	3	4	5	TOTAL	CASI	1	?	3	4	5	TOTAL
1	1	0	ŧ	ı	3	•	ì	3	0	3	2	3	11
2	1	i	2	1	c	5	2	1	0	7	0	3	11
3	6	0	8	1	\$	22	3	5	1	>	2	6	17
4	0	0	5	1	ı	15	4	ı	1	3	5	. 4	14
5	1	,	1	13	628	65 7	5	ı	2	5	15	526	649
TOTAL	•)	4	23	74	042	102	TOTAL	,	4	23	24	642	702
VFPNCN	SKILL	. sco	e £			0.48348	∀ERNON	SKILL	500	RE			0.52369
	とりへひ	CONT	l NGSNI	(4 A)	CANOSI:	s	પ્રદ	LIIPL	E 015	CRIMI	THAS	ANALY:	515
		1	18 SE P	1FD					C	BSERV	FD		
FORE-	1	2	•	•	5	forth	FCRE- CAST	1	2	3	4	5	TOTAL
t	5	i	5	,	4	1 7	1	3	J	2	e	0	5
2	,	n	7	i	C	4	2	2	ı	3	2	2	10
5	ŧ	•	14	, 4	78	112	3	ì	ð	7	4	4	16
4	1	ŗ	ı	ì	36	3.7	4	7	า	5	ı	7	17
			1	4	124	521	5	1	3	tı	15	629	654
100	'4	4	23	24	642	70.	FilfAL	•	4	23	24	542	702
18 48 743	Seffic	SCOR	f		บ	.37535	4{ 641).7 ·	MILL	SCORE			o	. 55545

#### VERIFICATION OF 4 HOUR VISIBILITY FORECASTS RANDOLPH AFR. SAN ANIONIG, TEXAS THE VERIFICATION CRITERION IS THE VERNON SKILL SCORF

SUBJECTIVE

PERSISTENCE

EF.

		(	DRSER	veD.					c	DASER	/ED		
FORE- CAST	1	4	3	4	5	TOTAL	FORE- CAST	i	2	3	4	5	TOTAL
ı	1	0	2	ı	8	12	t	0	0	0	o	0	0
\$	0	0	2	o	3	5	2	0	0	0	c	1	ı
3	0	0	4	3	8	15	3	0	O	7	4	5	16
4	0	0	4	2	12	18	4	0	0	4	3	13	20
5	C	0	7	8	617	632	5	1	0	8	7	629	645
TOTAL	1	0	19	14	648	682	POTAL	ì	0	19	14	646	682
VERNON	SKILL	SCORI	E		0	.33147	VERNON	SKILL	SCORE	ŧ		o	.42621
CLIFAT	01 0G 1C	AL E	KPECTI	FNCY	OF PER	SISTENCF			C	GRNUP	1 NG		
		ŧ	UBSERY	/ED					C	3CSER'	<b>VED</b>		
FORE CASI	1	2	3	4	5	TOTAL	FORE- Cast	t	2	3	4	5	FOTAL
1	0	0	0	1	C	1	1	1	0	i	v	5	7
2	C	0	2	G	6	8	,	e	O	3	3	7	13
3	c	v	5	1	5	11	3	U	0	5	3	19	26
4	c	G	4	4	8	15	4	o	v	i	1	8	10
5	1	0	ક	8	629	646	\$	3	0	9	8	609	626
TOTAL	1	0	19	14	648	682	TOTAL	1	3	19	14	648	682
VERNON	SKILL	SCORE	Ē		o.	. 36864	<b>४६</b> ९॥७॥ ५	KILL	SCORE	ŧ		0	28102
	LUND	CONT	INGEN	CY PR	ISONDOI	s	<b>&gt;</b> 0	ULTIPL	. 10 t	41 RD 2	FNANT	ANALY	\$15
		•	08588	4ED					ť	OHSER'	AED		
FORE~ CAST	ì	2	3	4	5	ENTAL	FORE- CAST	ı	2	3	٠	5	TOTAL
1	1	0	7	,	12	27	1	1	o	3	Ð	3	1
2	G	э	4	5	41	56	>	o	0	2	2	4	è
3	o	3	1	٤	3C	103	3		G	4	2	Ģ	15
4	c	o	0	ø	С	G	4	6	0	•	7	24	36
5	c	3	t	ı	439	501	•	o	3	5	3	od8	616
TUTAL	ı	o	15	14	* • 4	682	TOTAL	1	١	j đ	10	648	6×2
ZERNON	<sup>c</sup> kill	SCOM	f			.1~754	५६२७३५	* 111	^ (P)	t		o	. 40520

#### VERIFICATION OF G HOUR VISIBILITY FORFCASTS RANDOLPH AFR. SAN ANTONIO, TEXAS THE VERIFICATION CRITERION IS THE VERNON SKILL SCORE

SUBJECTIVE

PERSISTENCE

		_							-				
			JHSER	YŁĐ						DBSFR	VED		•
FORE- CAST	1	2	3	4	5	TOTAL	FORE- Cast	ı	2	3	4	5	TOTAL
1	a	0	ż	3	7	12	1	0	Q	0	0	1	1
2	c	o	2	0	3	>	2	e	0	0	o	1	ı
3	0	ı	0	ı	13	15	•	ŧ	0	4	5	7	17
4	С	0	o	2	16	lø	4	0	1	ı	1	13	16
5	1	1	10	10	61C	637	5	O	1	9	10	627	641
TUTAL	1	2	14	16	649	642	TOTAL	1	,	14	16	649	682
VERACN	SKIEL	SCARI	F		0	.16025	VERNOS	SKILE	SCOR	Ē		0	.29673
CL IMAT		AL E	KPECT	FNCY	NF PFR	SISTENCE			1	GROUP	146		
		(	IHSER	A£t:						DASER	VED		
FORE- CAST	ι	2	3	4	5	TOTAL	FORE- Cast	ı	2	3	•	5	TOTAL
ŧ	0	3	0	1	c	ŧ	1	c	o	3	3	12	18
2	0	0	1	0	ŧ	9	7	r	9	0	1	9	10
3	0	1	1	2	6	10	•	1	1	0	4	19	24
4	c	9	į	1	9	11	4	¢	0	5	1	31	17
5	1,	1	11	12	626	651	\$	1	1	6	7	598	613
TOTAL	1	5	14	16	649	682	TOTAL	1	2	14	16	649	682
VERNON	SKILL	SCORI	Ē		0	.16005	Afbuda	SKILL	SCOR	E		o	. 16285
	LUNC	CGNT E	NGENO	Y PR	OGNOSI:	s	Pet	յլ † ԼԲԼ	E 015	CREMI	INANT	ANALYS	515
		n	RSEPY	1ED					(	JUSE#1	/FD		
FURE- CAST	1	2	5	4	5	TUTAL	FORE- CAST	1	2	3	٠	,	TOTAL
1	υ	9	4	•	10	17	t	ō	e	1	2	1	4
2	•	ı	4	3	70	78	?	Q	0	,	ı	3	5
3	ſ	ŋ	2	5	81	#6	3	0	ı	6	c	17	19
4	2	Û	٥	G	9	•	•	3	0	2	4	19	26
5	•	ì	4	Ħ	519	492	5	9	ı	4	4	614	628
3,4101	ı	2	14	16	649	647	THTAL	1	2	14	16	649	682
AF HWUN	SKILL	ระกลเ	:		0	.07417	VERNON :	SKILL	SCORE	ŗ		0	. 14639

#### VERIFICATION OF 2 HOUR CEILING FORECASTS MCGUIRE AFB, WRIGHTSTOWN, N.J. THE VERIFICATION CRITERION IS THE VERNON SKILL SCORE

		PE	RSIST	ENCE							IBJCC			
		!	OBSER	AED						(	DBSER	VED		
FORE- CAST	ı	2	3	4	5	TOTAL		ORE-	1	2	3	4	5	TOTAL
1	8	3	1	0	1	13		ı	5	1	1	0	4	11
2	3	13	3	2	C	21		2	3	19	5	0	2	20
3	0	5	25	6	3	36		3	2	11	16	8	6	43
4	0	1	9	29	25	64		4	0	1	13	33	23	70
5	3	1	4	29	440	477		5	4,	ა	4	25	434	467
TOTAL	14	23	39	66	469	611	1	TOTAL	14	23	39	66	469	611
∕ERNON	SKILL	SCOR	E		(	0.71533	•	/ERNON	SKILL	SCOR	e		•	0.64725
CLIMATI	010610	AL E	(PECT	ENCY	OF PER	SISTENCE				ć	SROUPI	NG		
		C	BSER	VED						c	SBSERV	ŧυ		
FORE- CAST	ı	2	3	4	5	TOTAL		ORE- AST	1	2	3	4	5	TOTAL
1	4	1	i	e	0	6		1	ð	3	1	0	ı	13
2	7	15	3	2	1	28		2	3	13	5	2	0	23
3	0	5	22	6	3	36		3	o	5	25	8	3	41
4	o	1	9	29	25	64		4	e	1	6	34	26	67
5	3	1	4	29	440	477		5	3	1	2	22	439	467
TOTAL	14	23	39	66	469	611	T	OTAL	14	23	39	Sò	469	611
VERNUN S	S×1LL	SCORE	:		o	.70856	٧	ERNON	SKILL	SCORE	:		n	.74328
	LUND				IOGNOS I	s		,	#JL T I P t				ANALY	rs1s
6006			ORSER	AFI				ORE-		'	DUSER	16.0		
FORF- CAST	1	2	3	4	5	FOTAL		AST	1	2	3	4	5	TOTAL
i	^	3	0	э	c	9		1	8	3	0.	ı	0	12
2	11	17	11	4	2	45		2		12	5	C	1	20
3	•	4	17	12	6	39		3	2	6	24	8	3	43
•	ð	9	5	15	e	28		4	0	1	7	24	16	53
5	3	,	6	35	453	499		5	7	1	3	28	449	483
19141	14	23	39	66	469	611	1	DATG	14	23	39	65	469	611
VENTA - SKILLE SCORE 0-67094					•	/E9X0Y	SKILL	SCOR	E		1	0.74620		

### VERIFICATION OF 4 HOUR CEILING FORECASTS MCGUIZE AFB, MRIGHTSTOWN, N.J. THE VERIFICATION CRITERION IS THE VERNON SKILL SCORE

SUBJECTIVE

PERSISTENCE

		1	OBSER	VED					(	DBSER	VED		
FORE- CAST	1	2	3	4	5	TOTAL	FORE- CAST	1	2	3	4	5	TOTAL
1	0	4	2	0	3	9	1	0	3	0	o	2	5
2	0	8	7	2	ı	18	2	ı	4	4	i	1	11
3	ì	2	lo	4	4	27	3	0	7	14	9	5	35
4	0	5	6	16	29	56	4	0	2	9	23	28	62
5	c	1	7	7?	374	409	5	o	4	11	16	375	406
TOTAL	1	20	36	49	411	519	TGTAL	ı	20	38	49	411	519
VERNON	SKILL	SCOR	E		o	.57715	VERNON	SKILL	SCORI	Ē		0	.56360
CLIMAT	oroci	CAL E	XPECT	EYCY	OF PER	SISTENCE			(	GROUP	ING		
		;	SSER	YEC					(	DESER	VED		
FGRE- CAST	1	2	3	•	5	JATOT	FORE- CAST	1	2	3	4	5	TOTAL
7	0	1	c	Q	ì	2	ı	0	4	2	0	ı	7
2	Ω	8	5	0	3	18	2	0	8	6	ì	5	17
3	1	5	20	t	4	36	3	ı	4	18	6	6	35
4	O	5	٤	16	29	56	4	5	3	6	17	28	54
9	G	ì	7	27	374	409	5	0	ı	6	25	374	406
FOTAL	ı	26	38	49	411	519	TOTAL	1	20	38	49	411	519
VERNON	skill	SCOR	E		o	<b>.</b> 58849	VERNON	SKILL	SCOR	E		0	.60557
	LUND	CONT	INGEN	CY PA	.0GNO\$1	s	*41	ULTIPI	LE DIS	CRIM	INANT	ANALY:	312
		(	DBSER	v €0					(	)BSER1	VED		
FORE- CAST	ı	2	,	4	5	FOTAL	FORE- CAST	ı	5	3	4	5	TOTAL
1	0	1	Ø	o	z	3	ŧ	0	3	1	0	1	5
\$	0	10	15	6	5	36	2	ŧ	6	3	1	1	14
3	i	7	14	9	4	35	1	3	9	19	12	6	45
4	c	ι	5	24	16	106	4	0	ì	6	14	9	30
5	6	ı	4	10	324	339	5	Ġ	2	7	22	394	425
PATOT	ì	20	13	49	411	519	TOTAL	ŧ	20	38	49	411	519
VERNCY	SKILL	SCOR	£		0	.53601	YERNC'S	SKILL	SCORE	•		0	.64848

### VERIFICATION OF 6 HOUR CEILING FURECASTS MCGUIRC AFR. MRIGHTSTOWN. N.J. THE VERIFICATION CRITERION IS THE VERNUN SKILL SCORE

			LS IST DASER							JRZES.			•
FORE- CAST	ı	2	). }	4	5	TOTAL	FORE- CAST	ı	2	1	4	5	TOTAL
1	G	o	3	υ	6	9	1	0	ì	1	1	3	6
3	2	2	6	6	2	18	2	1	4	4	c	•	13
3	1	6	4	7	6	2 H	3	ı	4	12	9	6	32
4	1	5	9	18	23	56	4	,	,	ь	31	26	56
5	1	2	4	32	368	408	5	ł	3	8	22	366	406
TOTAL	5	15	31	43	405	519	TOTAL	5	15	31	63	405	519
VERNOY :	SXILL	SCORE	Ē		U	.45483	VERNON	SKILL	SCCR	F		o	.52109
CLIPATI	olos ro	IAL EX	(#FC1)	ENCY	GF PER	SISTENCE			(	GROUP	146		
			ひゃくをく	VEC					(	Dasek	VED		
FOPE~	1	2	1	4	5	TOTAL	FOPE- CAST	ı	2	3	4	5	TOTAL
1	c	3	ı	0	1	7	1	c	9	,	c	2	4
2	3	*	5	2	2	15	>	1	1	2	2	4	10
3	C	4	11	11	11	37	1	1	1	5	3	7	17
4	t	5	3	18	23	56	4	t	7	13	28	48	91
5	1	7	5	32	168	40 M	5	5	6	9	30	344	391
JA TOT	5	15	31	67	405	51→	TOTAL	5	15	31	63	405	519
VERNON	SKILL	70046	Ē		o	•49642	VERNON	SKILL	SCORE	Ē		o	.33118
	LUNO	CONT	[*GE*	CA ny	1064051		; 94)	UL T [P:	LE DI'	SCRI=	IVANT	ANALY	\$15
		(	INSER	<b>4</b> د ب					•	38568	VE D		
FORF- CAST	ı		3	4	5	TOTAL	FGRE- CASI	ι	2	3	4	5	TOTAL
1	ì	2	4	J	56	n	ı	e	ა	0	0	G	0
7	2	7	4	5	A	25	?	1	7	12	•	4	28
3	ı	3	11	1 3	11	44	3	2	•	8	¥	5	2#
4	;	1	5	15	30	51	4	1	2	6	23	24	56
•	,	1	3	20	300	324	5	1	2	5	21	372	407
FOTAL	5	15	31	43	405	514	TOTAL	5	15	31	63	405	519
VEHWINE !	ZEHTION SKILL SWIRF 0.74671				VERNON :	SKILL	SCORE	[		o	. 55505		

#### VERIFICATION OF 2 HOUR VISIBILITY FORECASTS MCGUIRE AFR, WRIGHTSTOWN, N.J. THE VERIFICATION CRITERION IS THE VERNOM SKILL SCORE

		PE	RSIST	ENCE					S	UBJEC	TIVE		
			OBSEA	VEO						OBSER	VFD		
FORE- CAST	ı	2	3	*	5	FOTAL	FORE- Cast	1	5	3	4	5	TOTAL
1	11	5	o	0	0	16	ı	ь	5	3	0	0	14
1	2	6	6	1	c	15	2	3	2	7	1	2	15
3	ı	4	37	10	é	>#	3	2	;	41	14	9	73
4	O	3	72	21	11	54	4	2	0	50	25	31	78
5	c	1	15	22	431	464	5	1	2	ų,	14	406	432
TOTAL	14	16	80	54	. 448	613	TOTAL	14	lo	40	54	448	612
VERNON	SKILL	:CO#	F		0	. 72967	VERNUN	SKILL	SCOR	E		o	.66231
CL JHA	100001	CAL E	XPECT	ENCY	OF PER	SISTENCE			ı	GROWE	146		
			anse <b>r</b>	N\$D						NBSER	vFÐ		
FORE- CAST	ì	2	3	4	5	TOTAL	FORE- CASE	t	2	3	4	5	TOTAL
ı	:1	5	0	0	c	16	1	17	7	9	(	9	19
2	1	4	4	ι	G	1 C	2	1	3	11	2	ı	18
3	2	6	39	10	٤	63	3	1	5	34	13	9	62
4	c	0	55	71	11	24	4	0	0	24	20	8	52
5	r	1	15	72	431	<b>~6</b> 9	5	0	ı	11	19	430	461
TOTAL	14	16	80	54	446	612	TOTAL	14	16	80	54	448	612
VERNON	SKILL	SCOR	E		0	. 72505	VERNON	SKILL	SCOR	F		o	.72166
	LUND	CONTI	INGENO	Y PR	OGNOSI:	i	м	ՍԼ 1191	. 6 019	CR14	**************************************	AMALY:	515
		ĩ	DUSERV	er.					:	)65£41	180		
FORE- CAST	ı	5	3	4	5	TOTAL	FIDE- Cast	1	2	3	•	5	TOTAL
1	10	6	1	ų	c	3 7	t	9		2	0	0	19
2	3	5	7	2	c	17	?	4	7	1	1	0	14
į	1	4	41	16	15	13	3	i	,	44	15	7	72
4	c	0	16	16	16	4.8	4	0	i	18	23	51	63
5	r	1	15	20	417	.51	Ģ	G	0	9	15	420	444
FREAL	:4	ls	90	54	448	612	PATRE	14	16	80	54	448	617

VERNON SKILL SCIRE 0.73587

MARKET THE STREET, SAME

VERNEN SKILL SCORE 0.68810

#### VERIFICATION OF 4 HOUR VISIBILITY FURECASTS MCGUIRE AFB, WRIGHTSTOWN, N.J. THE VERIFICATION CRITERION IS THE VERNON SKILL SCORE

		PΕ	RSIST	ENCE					S	UAJEC	3711		
		1	OBSER	VED						OBSER	vED		
FORE- CAST	1	2	3	4	5	TOTAL	FORF- CAST	1	2	3	4	5	FOTAL
1	1	ı	7	2	1	12	1	i	1	1	1	ì	5
2	1	3	4	3	2	13	2	o	0		1	3	ક
3	0	0	19	14	14	47	3	1	2	18	6	9	38
4	1	0	13	11	23	48	4	1	ì	20	18	34	74
5	0	3	9	27	355	394	5	0	3	9	29	348	389
TOTAL	3	7	5?	57	395	14	TOTAL	3	7	52	57	395	514
VERNON	SKILL	SCOR	E		d	.49277	VERNON	SXILL	SCOR	E		c	.46415
CLIMATO	0F0@1C	AL FX	(PECT)	:NCY	OF PER	SISTENCE			٠	GROUP	ING		
		r	BSER	/ED					ŧ	3857P	veD		
FORE- CASI	1	2	j	4	5	TOTAL	FORE- CAST	ı	2	3	4	5	TOTAL
1	c	ō	2	0	1	3	1	ı	2	8	2	1	14
?	2	3	11	4	3	23	?	1	2	2	4	3	12
3	С	ı	20	16	20	57	3	ì	0	17	10	13	41
4	1	0	10	10	16	37	4	0	0	13	11	15	39
5	С	3	ų	27	355	394	5	0	3	12	30	343	408
TOTAL	3	7	52	57	395	514	TOTAL	3	ì	52	57	395	514
VERNON	SKILL	SCORE	Ĭ.		0	.49051	VERNON	SKILL	SCORE	E		0	. 48030
	LONE	CONT	INGEN	CY PG	ROGNOSI	\$	,	10L3124	LE DI	SCRIM	INANI	r analy	\$1\$
			OBSER	vEn						OBSER	VEO		
FORF- CAST	ı	2	3	4	5	10146	FORE- CAST	ı	2	3	4	5	TOTAL
ı	1	1	6	1	1	10	ì	2	1	8	2	1	14
>	1	3	5	2	4	15	7	0	3	3	3	1	10
3	1	o	21	22	24	58	3	1	0	24	14	18	62
49	c	9	14	13	25	52	4	9	υ	9	17	27	53
5	r	3	6	19	341	367	5	ð	3	в	16	348	375
FOTAL	3	7	52	57	195	514	TOTAL	3	7	52	53	395	514
VE NON SKILL SCORE 0.48716				VEPTON	Sklu	SCOR	r		c	), 43343			

#### VERIFICATION OF 6 HOUR VISIBILITY FORECASTS MCGUIRE AFB, BRIGHTSTOWN, N.J. THE VERIFICATION CRITERION IS THE VERNON SKILL SCORE

			851511 085881							BSER1			
FURE~ C4ST	ı	2	3	4	•,	10 1	FURE- CAST	i	2	3	4	5	YOTAL
1	o	ì	3	3	5	12	1	٥	1	2	1	1	5
2	1	1	4	3	4	13	2	1	ı	4	0	3	9
3	3	1	12	17	2 l	47	3	S	ı	6	4	9	22
4	2	0	7	16	23	48	4	0	ì	13	17	36	67
5	1	į	11	19	365	397	\$	2	e	12	31	369	414
107AL	5	4	37	53	415	317	TOTAL	5	4	37	53	418	517
VERNON S	KIF?	Scori	•		0.	. 37048	VERNON S	iKíLL	SCORE	•		. 0.	. 38277
SLIMATE	orog 10	AL E	XPEC1	EACA	OF Led	S!STENCE				GROUP	ING		
		1	OBSER	VED					(	DBSER	VED		
FORE- CAST	ı	2	3	4	5	TOTAL	204E- C451	t	2	3	4	5	TOYAL
i	0	1	ı	0	i	3	ı	0	i	1	2	5	à
2	2	ì	6	3	2	24	2	i	0	4	7	12	20
3	2	l	12	14	16	45	3	c	2	13	12	39	46
4	2	0	1	11	34	58	•	3	0	10	15	35	63
>	1	ı	11	19	365	397	5	ı	1	9	21	347	379
TOTAL	5	4	37	53	418	517	TOTAL	5	4	37	53	418	517
VERKON	škili.	SCOR	F.		0	<b>. 449</b> 30	VERNON	SKILL	SCOR	E		0	.33454
	LUND	CONT	INGEN	CY PA	OGNOSI	s	M	JLTIPL	.E DI:	SCR IM	IHANI	ANALY.	515
		(	DASER	VEO					(	OBSER	VE D		
FORE- CAST	i	2	3	4	5	TOTAL	FORE- CAST	ι	2	3	4	5	TOTAL
1	e	ı	2	2	2	7	1	0	1	5	1	4	11
2	2	0	7	6	11	25	2	2	2	6	4	4	18
3.	2	3	18	76	56	105	3	1	0	12	25	35	74
4	c	0	1	10	46	57	4	1	0	9.	11	39	60
5	1	Ú	ç	4	303	327	5	1	ì	5	11	336	354
TOTAL	5	4	37	53	414	51 /	FOTAL	5	4	37	53	418	517
VERHON SKILL SCORE 0.71399				VERNON :	SKILL	SCOR	E		0	. 38646			

# APPENDIX D WEATHER BUREAU WEIGHT FUNCTION February 28, 1963

#### APPENDIX D. WEATHER BUREAU WEIGHT FUNCTION\*

#### D. 1 Introduction

The U.S. Weather Bureau, in response, furnished a weight function and requested that it be used to evaluate some of the 2-7-hr ceiling and visibility forecasts. The weights are given in Table D-1. The procedure followed was the same as that used for the three types of weight function discussed in Section 2.0. The verification score is obtained in a manner entirely analogous to that used to obtain the Bryan score. The Only three forecast techniques were considered: persistence, subjective categorical, and multiple-discriminant analysis.

TABLE D-1
PATTERN OF MERITS

	01		Obse	i) bevne	)	
	Class	1	2	3	4	5
	1	10.ა	7.0	2.0	0.0	0.0
(;)	2	6.0	9.0	5.0	1.0	0.0
Forecast	3	1.0	4.0	7.0	3.0	C.5
For	Ц	0.0	0.5	2.0	4.5	1.0
	5	0.0	0.0	0.0	1.0	1.5

<sup>\*</sup>Isadore Enger and Ann L. Bussemey, Feb. 28, 1963.

<sup>†</sup>See Section 2.4.6.3 of Enger, I., L. J. Reed, and J. E. MacMonegle, An Evaluation of 2-7-hr Aviation Terminal-forecasting Techniques, 38 pp. Tech. Rpt. 7044-40, The Travelers Research Center, Inc., Hartford, Oct. 1962.

#### D.2 Verification Results

For a single forecast, the verification score is

$$SG = W_{ij}, (D-1)$$

where  $W_{ij}$  is the merit ascribed to forecast category i when category j occurs. The W-values are the merits listed in Table D-1.

Mean SG-scores are given in Table D-2. Examination of Table D-2 shows that the multiple-discriminant-analysis (MDA) technique yielded the highest scores on 31 of the 42 predictands, subjective was high on seven predictands, persistence on three, and there was one tie. The "average-over-station" mean SG-scores in Table D-2 show that the MDA technique gave higher scores for all three forecast lengths for both ceiling and visibility forecasts. The scores were averaged by station, and the results (not shown here) indicate that MDA yielded higher scores at all stations except Atlantic City, where subjective scores were highest.

The paired-comparison t-values are given in Table D-3. This table shows that the mean SG-scores achieved by MDA were statistically significantly higher than the mean scores achieved by the persistence technique beyond the 5% level on 29 of the 42 predictands. Similarly, subjective mean scores were higher than persistence on 13 predictands. The t-test probabilities were combined by Fisher's method\* to obtain a single significance test for all 42 predictands. The MDA scores were significantly higher than both the subjective and persistence scores beyond the 1% level of significance.

Values of the index I were computed for the "average-over-station" SG-scores of Table D-2 and are presented in Table D-4. This table shows that, relative to persistence, the MDA technique achieved a percentage increase ranging from 15.1 to 20.7 for ceiling and 9.8 to 17.9 for visibility. The subjective technique achieved increases of -3.0 to 20.5 for ceiling and -1.5 to 4.6 for visibility.

<sup>\*</sup>Fisher, R. A., <u>Statistical Methods for Research Workers</u>. 11th ed., pp. 99-101. New York: Hafner Publishing Co., 1950.

## TABLE D-2 VERIFICATION SCORES ON EVALUATION-YEAR DATA COMPUTED WITH GAIN MATRIX FURNISHED BY ROGER ALLEN

#### (a) Predictand element is ceiling

Pr	edictand		Verifica	ation scor	e (SG)
Sta	Fcst length, hr	No. of fcsts	Pers	Subj	MDA
ACY CEF DCA IDL OFF RND WRI	3 2 3 × 2 2 2	729 729 607 1,451 712 716 611	1.908 2.287 1.694 1.976 2.052 2.475 2.146	1.944 2.316 1.699 1.960 2.000 2.446 2.047	1.970 2.436 1.711 2.023 2.069 2.571 2.254
Mean	2-3	5,555	2.077	2.063	2.148
ACY CEF DCA IDL OFF RND WRI	5455444	729 725 609 1,452 724 716 519	1.740 2.083 1.608 1.848 1.819 2.013 1.887	1.842 2.036 1.641 1.843 1.874 2.105 1.866	1.789 2.179 1.662 1.911 1.907 2.144 2.028
Mean	4-5	5,474	1.857	1.887	1.946
ACY CEF DCA IDL OFF RND WRI	7 6 7 7 6 6 6	727 724 728 1,452 723 714 519	1.644 1.855 1.551 1.703 1.726 1.772 1.706	1.797 2.057 1.636 1.819 1.755 2.118 1.834	1.746 2.077 1.679 1.774 1.795 2.059 1.891
Mean .	6-7	5,587	1.708	1.859	1.860

(b) Predictand element is viscoliity

Pre	dictand		Verific.	ation scc	re (GG)
Sta	Fost Tength, hr	Nc. cf fcsts	ſers	Subj	ACV
ACY CEF DCA I DL CFF RND WR I	3 2 3 3 2 2 2	729 727 728 1,452 719 716 612	1.656 1.982 1.534 1.642 1.646 1.614 2.237	1.637 2.107 1.519 1.674 1.586 1.584 2.194	1.634 2.285 1.564 1.703 1.664 1.654 2.401
Mean	2-3	5 <b>,</b> 683	1.759	1.757	1.843
ACY CEF DCA IDL CFF RND WRI		729 725 725 1,453 711 717 603	1.486 1.857 1.479 1.544 1.605 1.512 1.832	1.606 1.829 1.466 1.559 1.539 1.524 1.740	1.465 1.986 1.488 1.570 1.652 1.537 2.031
Mean	4-5	5,663	1.616	1.609	1.676
ACY CEF DCA IDL OFF RND WRI	7-67-7-666	727 724 728 1,452 713 717 606	1.417 1.650 1.471 1.469 1.540 1.439 1.686	1.557 1.657 1.462 1.561 1.479 1.499 1.642	1.485 1.729 1.453 1.518 1.532 1.499 1.799
Mean	6-7	5,667	1.525	1.548	1.574

#### (c) Composite of (a) and (b) for all stations and forecasts

Nc. of	Mean ve	rification	score
10313	Pers	Subj	MDA
33 <b>,</b> 629	1.757	1.787	1.841

TABLE D-3
1-VALUES COMPARING THE MEAN SG-SCORES FOR CATEGORICAL FORECASTS FOR EVALUATION-YEAR DATA

#### (a) Predictand element is ceiling

Predictand		No∙ of	t-value				
Sta	Fcst length, hr	fcsts	Subj Pers	MDA Pers	MDA Subj		
ACY CEF DCA IDL OFF RND WRI	3 2 3 3 2 2 2	729 729 607 1,451 712 716 611	0.817 0.491 0.157 -0.436 -1.240 -0.526 -1.761	1.863* 3.079† 0.582 2.394† 0.675 2.047* 2.541†	0.557 2.262* 0.344 1.872* 1.657* 2.126* 3.589†		
ACY CEF DCA IDL OFF RND WRI	54 5 54 4 4	729 725 609 1,452 724 716 519	2.239* -0.912 0.940 -0.130 1.283 1.646 -0.383	1.316 2.221* 1.763* 2.667† 2.414† 2.887† 2.980†	-1.186 2.780† 0.647 1.921* 0.868 0.675 2.744†		
ACY CEF DCA IDL GFF RND WRI	7 6 7 7 6 6 6	727 724 728 1,452 723 714 519	2.977† 3.647† 2.005* 2.691† 0.659 4.988† 2.421†	2.240* 4.817† 3.413† 2.213* 1.679* 4.802† 3.447†	-1.073 0.361 1.163 -1.144 0.953 -1.017		

AT !

(b) Predictand element is visibility

Predictand		No of	t-value		
Sta	Fost	No. of	Subj	MDA	MDA
	length, hr	fcsts	Pers	Pers	Subj
ACY	3	729	-0.401	-0.716	-0.055
CEF	2	727	2.100*	5.346†	3.443†
DCA	3	728	-0.537	1.521	1.432
IDL	3	1,452	0.963	2.550†	0.888
OFF	2	719	-1.900	0.781	2.354†
RND	2	716	-0.842	1.577	2.175*
WRI	2	612	-0.638	3.097†	3.354†
ACY	5	729	3.135†	-0.795	-3.666
CEF	4	725	-0.591	2.746†	2.803†
DCA	5	725	-0.540	0.561	0.964
IDL	5	1,453	0.451	1.022	0.340
OFF	4	711	-2.112	1.882*	3.022†
RND	4	717	0.366	0.852	0.389
WRI	4	603	-1.464	3.804†	4.486†
ACY	7	727	3.232† 0.153 -0.402 2.669† -2.023 2.487† -0.806	1.874*	-1.333
CEF	6	724		1.713*	1.254
DCA	7	728		-1.038*	-0.418
IDL	7	1,452		1.862*	-1.206
OFF	6	713		-0.293	1.541
RND	6	717		2.268*	0.000
WRI	6	606		2.062*	2.556†

\*The mean SG-score for the first technique is significantly higher than the mean score for the second technique at the 5% level.

The mean SG-score for the first technique is significantly higher than the mean score for the second technique at the 1% level.

Finally, the mean scores for all 42 predictands given at the bottom of Table D-2 show that the MDA score was higher than the subjective score by an amount almost twice the amount that the subjective score was higher than the persistence score.

TABLE D-14
PERCENT IMPROVEMENT (I) OF GAIN-FUNCTION
SCORES FOR CATEGORICAL FORECASTS RELATIVE
TO PERSISTENCE FOR EVALUATION-YEAR DATA

Pred	ictand	I, %		
Elem	Fost length, hr	Subj	MDA	
	2-3	-3.0	15.1	
CIG	4-5	5.1	15.1	
	6-7	20.5	20.7	
	2-3	-0.4	17.9	
VIS	4-5	-1.5	12.7	
	6-7	4.6	9.8	